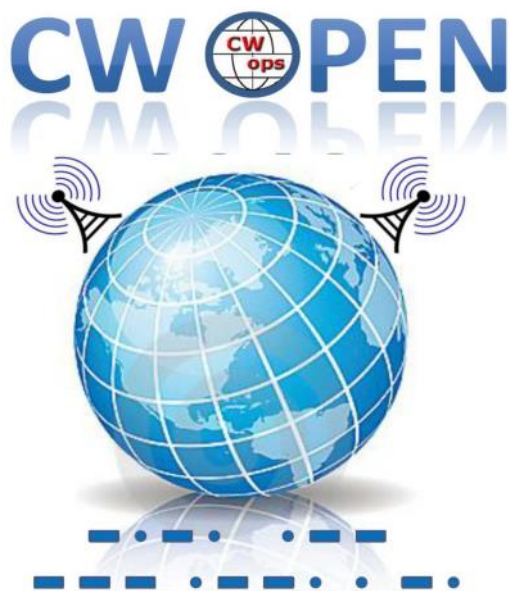


Solid Copy



The CW Operators Club Newsletter

August 2020 — Issue 127



Get ready for the CW Open! [Story page 12.](#)

CWops "CWT" Every Wednesday

Start: 13Z, 19Z, 03Z (+1), 1 hour each session

Exchange: name/number (members)
name/SPC (non-members)

Avoid DX pileups!

Next slow speed CWT is November 11-12.

US Vanity Callsign web site:

<http://cwomc.org>

CWops "neighborhood": Look for CWops on
1.818, 3.528, 7.028, 10.118, 14.028, 18.078,
21.028, 24.908, 28.028, 50.098 "and up"

CWops Officers and Directors

President: Mac McDonald [NN4K](#)

Vice President: Peter Butler [W1UU](#)

Secretary: Jim Talens [N3JT](#)

Treasurer: Craig Thompson [K9CT](#)

Director: Stew Rolfe [GW0ETF](#)

Director: Nodir Tursoon-Zade [EY8MM](#)

Director: Raoul Coetzee [ZS1C](#)

Director: Matt Frey [CE2LR](#)

Director: Bert Banlier [F6HKA](#)

Director: Barry Simpson [VK2BJ](#)

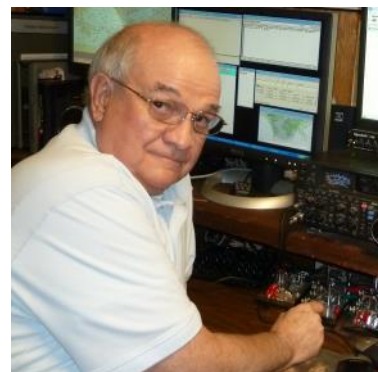
Director: Riki Kline [K7NJ](#)

WebGeek: Dan Romanchik [KB6NU](#)

Newsletter Editor: Tim Gennett [K9WX](#)

President's Message

Like many of you I miss the Hamvention, ham fests, club meetings and many other gatherings with my ham radio friends. The pandemic changed the way we live several months ago, and



there is no way of knowing if a "re-set" will happen and we will resume our previous ways of life. It's allowed creative venues to open up and I may be only aware of a few. But the use of

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virtual meetings through the use of the Internet softened the side effects that society is coping with. Thanks to innovative thinking and applications, everyone is able to engage the new models of operation for the benefit of continuing business operations as well as social groups. We may not need a “re-set” and will emerge post-pandemic with better uses of our time and materials.

For amateur radio, I am not aware of much stress associated with the pandemic restrictions. We can still communicate in so many ways. We have natural social distancing built into operating conditions, so safety is accomplished. The various modes we use help minimize boredom because we can change to different ones. But it's still individualistic and if building a device requires parts, the online ordering process is a mouse click away. Waiting for the parts to arrive has shrunk as well allowing our momentum to push on.

We have a lot to be thankful for and hopefully we are not keeping it a secret as some others in our sphere of influence would like to know what we do and how to do it too. Recommend amateur radio to friends and family and point them to the educational resources available for studying and qualifying for a license. Be sure to mention that a lot of fun can be found using Morse Code. Using a virtual meeting you can show and tell them about all the modes of ham radio and enable them to listen to live conversations via your ‘share screen.’

By the appearances on my HDRSDR Panadapter the active bands are loaded with CW signals on weekends and during contests. The FT8 band segments are nearly non-stop, 24/7. People are enjoying ham radio. I suspect the phone portions are also populated as well but I haven't spent much time there. I thought the Sputnik satellite era was amazing, but what we have available now is greatly expanded and unimaginable to foretell as a Novice licensee so many years ago. A small, twenty-dollar dongle has been my entrée into the world of SDR and what an amazing enlightenment it has been. CW signals seem like ‘arm-chair’ QSOs because they can be more clearly copied than on my analog receiver's sound output.

Reading some recent reports about our solar cycle has been encouraging. Let's hope we are on the verge of a fantastic Solar Cycle 25. Stay tuned.

The Fall Semester of our CW Academy begins in September for eight-weeks. We wish all the incoming students from Beginners to Advanced to be successful in their pursuit of CW skills. The enrollment process, class assignment and scheduling are working well. We are always in need of student advisors as classes grow or existing advisors need a break, so consider offering your services. We will train you on how to be an advisor and run a class before we turn you loose without any support. Many advisors are enjoying the experience of helping fellow hams progress in the CW mode.

The July and August contests, especially the NAQP CW by the ARRL NCJ and others were a lot of fun. CWops is growing in Europe and when conditions are good, we are logging more and more DX stations.

Many of you have experienced storm damage recently and we hope you have been able to restore your operating conditions as we are heading into the Fall contest season. Our own CW Open Con-

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test is one you want to plan on. It is on the first weekend of September. There are three 4-hour sessions in the 24-hour period. Major awards are available for category winners. Icom America has been a key sponsor of these awards for several years. Make plans to join the fun.

Keep the CW portions of the bands filled with Dits and Dahs so folks can know we are having fun.

CW Forever!

73, Mac NN4K, President

From the [Editor](#)

I yield my column space this month to Wayne Burdick, N6KR, chief technology officer and one of the [co-founders of Elecraft](#). And also an ardent CW enthusiast. Wayne shares a novel point of view on the merits of CW, our favorite mode. He originally shared these thoughts in the [July Elecraft newsletter](#) and then graciously extended an offer to *Solid Copy* to reprint his piece so that it might reach our audience. Thanks, Wayne!

73,

Tim K9WX Editor



On Second Thought, I'll take the Stairs.

[Wayne Burdick, N6KR](#)

I have a friend about my age who got into amateur radio only a few years ago. Like many of us, he was enthusiastic about the technology. Intrigued with DX.

I showed him my station; we talked endlessly about gear. Later, I helped him put up a simple wire antenna.

Then, when his license arrived, he dove straight into FT8 and didn't look back. Within days, he'd worked all states, then DXCC. He'd bag a few rare ones over a light lunch, then pat his laptop on the back and congratulate his software app for its near-mythical ability to extract weak signals

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out of noise.

Within weeks, he'd mastered everything there was to know about this glorious new hobby.

Point. Click.

In this new world order, those of us who took the longer, slower path to ionospheric enlightenment -- and who still occasionally enjoy making waves by hand -- often fail to explain why.

I had failed to explain it to my friend. Even as hints of his boredom crept in, creating an opening, the best argument I'd made for trying CW was that he could do it without a computer. Coming in a weak second was the notion that CW was the original digital mode. For obvious reasons, I didn't bother with the classic argument about CW's signal-to-noise advantage over SSB.



Wayne, N6KR

I had all but given up.

Then, in a moment of delayed clarity, I decided on a different approach. I invited him to a weekday brunch. A bit of an escape. He willingly took the bait.

On the appointed day, arriving at his workplace, I bypassed the lobby's glistening elevators and climbed the four flights of stairs to his office. I insisted we take the stairs down, too.

"Why?" he asked. "And how'd you get up here so fast?"

I pointed out that I always chose stairs, when possible. That's why I wasn't out of breath. We hustled down, jockeying for position, and emerged on the ground floor invigorated by the effort.

"So, where are we going?" he asked. We'd been to every overrated twenty-dollar burger venue at least twice.

I replied that we'd be going someplace we'd never tried. My kitchen.

When we arrived, I put him to work chopping onions and broccoli and squeezing oranges while I whipped eggs into a froth and grated Swiss cheese. We ate our omelets outside, in full sun and a cool breeze.

"What's for dessert?" he asked. "Isn't there a frozen yogurt place a two-minute drive from here?"

I had something else in mind. Back in the kitchen, I handed him a water bottle, then slipped on a small pack I'd prepared earlier.

We walked a mile or so through my neighborhood, admiring the houses' varied architecture, ending up (as planned) at a local park festooned with blackberry bushes. The most accessible

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branches had been picked clean, but with teamwork and persistence we were able to gather several large handfuls of fat, ripe berries, which we devoured on the spot. We'd been poked and scratched but didn't care.

"Doesn't brunch usually end with champagne?" he wondered aloud, admiring his wounds.

Not this time. I pulled out two bottles of craft beer that I'd obtained from a neighbor in trade for repairing his ancient home stereo. Carlos had spent years crafting an American pilsner to die for, sweating every detail, including iconic, hand-painted labels.



On a recent weekend, Wayne and his son Griffin [hiked up Sierra Buttes](#) (8600 feet). The hike ends with a white-knuckle ascent up 100 stairs to a fire lookout. And, yes, they operated a KX2 from the top. Photo credit: Griffin Svec-Burdick, copyright 2020.

My friend accepted the bottle, then tried in vain to remove the cap. Not a twist-off.

"Opener?" he said.

I handed him a small pocketknife, an antique without extra blades. He soon discovered it could not be used to remove the cap directly. He looked at me with a bemused expression, no doubt wondering what I had up my sleeve this time.

I pointed out that we were surrounded by white oaks, a species known for its hard wood. He got the message, smiled, and began hunting. Within seconds he'd collected a small fallen branch. I watched as he used the knife to fashion a few inches of it into a passable bottle opener. We popped the caps, toasted his new-found skill, and traded stories of misspent youth.

"Oh, one more thing," I said.

I pulled a KX2 out of my pack, along with two lengths of wire. Of course, he knew everything there was to know about Elecraft, and me, so he wasn't surprised when I also pulled out the rig's

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attachable keyer paddle. We threw one wire in the closest tree and lay the other on the ground.

He didn't have to ask whether I'd brought a laptop.

We listened to CW signals up and down 20 meters, open to Europe at the time. As he tuned in each station, I copied for him using pencil and paper. He'd learned Morse code, but only at very slow speeds. After making a contact, I set the internal keyer speed to 10 words per minute and dialed power output to zero, for practice purposes, then showed him how to use the paddle. He smiled as he got the hang of it. Sending the full alphabet was a challenge, but he got there. The KX2 decoded and displayed his letters, providing confirmation.

We'd blown through his allotted lunch break by a factor of three, so it was time to go. We coiled up the antenna wires, packed up, and walked back. As I drove him back to his employer, we made plans to get together again for a weekend hike.

I could have just dropped him off, but we went back into the lobby together. Out of habit, he stopped in front of the elevator. We watched the illuminated floor numbers flash: digital and predictable eye-candy.

"OK," he said. "I get it. This CW thing. It's slow, doesn't always work, and takes years of practice."

"Like hunting for your own food, or carving your own tools," I added.

"Or cooking from scratch," he said. "Or brewing your own beer. Or building your own radio. But you use more of your senses. Not just your eyes, but your ears. Your sense of touch."

I nodded. Listening; feeling. That was the radio I'd grown up with.

"Of course it's harder to work DX with CW than with FT8," I reminded him, playing devil's advocate.

"Is that what matters, though?" he asked, with a sideways glance.

A longer discussion for another day.

"Your call," I said.

He gripped my shoulder and smiled, then aimed a forefinger toward the elevator's glowing, ivory colored UP button, gilded in polished brass.

The path most taken. The easy way.

Point. Click.

"On second thought," he said, "I'll take the stairs."

News and Notes

[Jerry Weisskohl AC4BT](#)

David Heller, K3TX (CWops #1997, SKCC #495) was reported as a SK in the August issue of QST. His SK date is May 24, 2020. The link to his obituary is here: <https://www.legacy.com/obituaries/name/david-heller-obituary?pid=196273865>

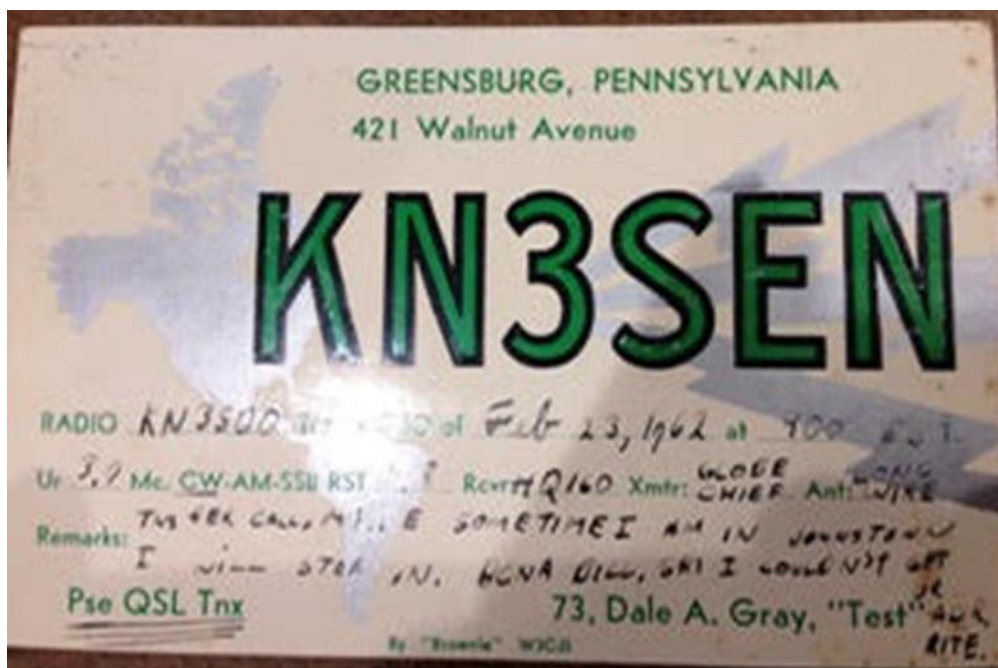
Per news from W3UR *Daily DX*, Dogu, ZP6CW, is a SK. Condolences may be sent to his XYL Daniella (Dani) ZP6CU: Daniella WOOLLEY, ZP6CU, P. O. Box 73, Caacupe, Paraguay, caacupe@gmail.com

Jim, N3JT: A new committee named FIC, Forum Identification Committee, has been created to identify forums, hamventions and other places where CWops can potentially participate using its CWops slide presentation (available on our website for download) or other means.

The goal is to bring CWops to the attention of folks who may know nothing of us. Volunteers NJ3K, AA8TA, N3IQ, W0FN and G3WZD will take the lead in doing this sleuthing. Our Ambassador program (now under review and restructuring) will use the contact information obtained by FIC to gain participation in future forum events. The presentations at those events will presumably be done by the Ambassadors, or through delegation by FIC members or others through the guidance of the Ambassadors.

This is all still in the formative stage but once implemented promises to expand awareness of CWops around the world. Thanks so much to Bruce, Joe, Brian, Tom and Duncan for stepping up to help with the FIC effort.

Dale, K3SEN: The club I belong to in Virginia is the Loudoun Amateur Radio Group (K4LRG). The club has many activities. One of these is an informal luncheon on Mondays at a local eatery (pre-COVID). One Monday, a club member, Bill Daniels K3WD, came in and showed me the QSL card (right). What a shock! This QSO occurred on 23 February 1962 between Bill, then KN3SDO, and I in CW on 80 m (the only crystal I had). The QSL is 58 years old (I was 14 years old)! Thank you, Bill. He must have a fantastic QSL collection!



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Walt, KC8J: I have moved from Shaker Heights, Ohio to San Diego, California. Early on July 2, 2020, Agnes (my daughter's dog) and I started to drive to California. Airlines were no longer flying dogs, so Agnes and I had to drive. After five days of driving and four nights in pet friendly hotels, we arrived at my daughter's house.

Operating in the CWTs has been a struggle. There is a large amount of electrical noise during the 1300Z CWT. This could be due to the sun rising and the multitude of nearby solar panel controllers starting to convert sunlight into electrical energy to feed into the grid. My antennas are a compromise at best, and I am experimenting with new designs hoping to find some that will work well at this QTH.

For the NAQP CW I put up a 20 m, 1/4-wavelength vertical with two elevated radials. I also used a Wolf River Coils 'Take It Along' antenna set up for 40 m with three 33-foot radials. These antennas were an improvement and I hope they will work well during the upcoming CWTs.

Duncan G3WZD: CWops & GR2HQ in the IARU World Championship

Having attended a GR2HQ presentation by Nick G4FAL and Chris GM3WOJ (CWops #2436) at last year's RSGB National Convention, I was very excited at being presented with the opportunity to join the RSGB Contest Club team operating GR2HQ in the recent IARU World Championship over the weekend of 11th and 12th July.

This year, the IARU Contest was a different experience for GR2HQ due to the Covid-19 restrictions in the UK. This meant that all preparations and operating were restricted to individuals utilizing their own shacks with no on-site assistance. It resulted in some significant compromises, with one major multi-op contest station, which has been used every year, being unavailable due to a lack of access. Despite this, it was an enjoyable and interesting weekend and hopefully things will be back to normal next year!

The team consisted of 38 ops including fellow CWops members Ray G3XLG #1365, John G4DRS #1457, Phil G4NVR #1583, Paul G4PVM #2413, Chris GM3WOJ #2436 and Stew

GW0ETF #919. Not everyone transmitted; some team members took Partner roles to help the running ops where the Partner may have been better placed to hear callers and drop those calls into the partner window of our logging software, Win-Test. This was especially useful on the upper



8- element M2 10 m antenna at GW0GEI

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bands, particularly 10 m. The team was large enough to allow us to run all 12 band slots throughout the 24-hour period.

This was a new experience for me on two counts; I've never previously even seen Win-Test, much less used it, so that was a very steep learning curve. Furthermore, I had never called CQ TEST in a major contest with a much sought-after call. It was a nerve-wracking experience and I don't mind admitting to a heightened pulse rate as I was about to hit the F1 key for the first time, though I settled down into my 15 m run and sort of found my groove after the initial white-knuckle/sweaty palms start.

I was very grateful to my spotting Partner, Andy G4KNO. Even though the ops were spread around the UK, it was still a great team experience. Each of the band sub-teams formed their own groups with dedicated VoIP speech and messaging channels, and there was a great spirit of camaraderie. I had a later SSB run on 10 m which was no-



Andy G4KNO (my spotting partner).



G3WZD

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where near as productive, or exciting!

The full details of our claimed score is on [3830scores](#) but, in summary, we made just over 14,000 QSOs of which almost 7,500 were CW, representing 178 zones and 248 HQ mults, for a total claimed score of 18.870,522 points. This was the best result for GR2HQ since 2014 when the team recorded their highest ever score of over 29 million points (25,427,236 points adjudicated).

I'm sure there were the usual fair share of problems, as would be inevitable with 38 separate stations all networked together. I had a network outage & PC crash in the early hours of Sunday morning, which necessitated a reinstall and re-config of Win-Test. Chris, GM3WOJ #2436, discovered (after the event) an incinerated connector on one of the two 5-element Yagis used for GR2HQ, which was causing some problems; luckily Tim M0BEW stepped in and did a great job while Chris sat cursing things!!

This was an immensely satisfying experience; I learned a lot from being part of a team so rich with experienced contest operators. Special thanks for Chris GM3WOJ for so ably orchestrating things and keeping everyone in line. I hope I can join the crew again for 2021 but, in the meantime, will need to work on my typing skills and get my callsign copying skills up to a comfortable 30-35wpm... that would certainly make life a lot easier.

Serafino, IT9CKA: 85° ANNIVERSARY CIRM: We are pleased to communicate a beautiful radio initiative, as reported on the poster, which took place in July 2020. To give prestige and pride to our city, we want to remember a fellow citizen, who with his brilliant intuition, distinguished himself in indelibly, giving birth to a benevolent service rendered to humanity; among other things, we named our Section to him. URI. This is the Trapani Dr. Guido Guida who lived in the first half of the twentieth century, then moved to Rome to practice the profession of doctor.

In 1935 together with a group of volunteers, he founded the CIRM International Radio Medical Center, a moral body having a totally free character, during his spare time and in any case with a shift that ensures coverage within 24 hours, still today after 85 years of existence, fully operational, he provides medical advice via radio to crews sailing around the world, thanks to which it has been possible save millions of lives. Given the importance of the event, the bodies responsible for radio, print

and television information were also involved in the two days of commemoration. For further details, please visit the qrz.com page and the [website www.uritrapani.it](http://www.uritrapani.it)



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CWops Sponsors a variety of awards for various contests throughout the year. Several recipients of these awards recently sent thank you notes to acknowledge their awards.

John Sweeney, K9EL, manager of CQ magazine's DX Marathon contest, announced that the CW first place finish went to Lada Prajsner, OK2PAY, who subsequently sent his thanks to Craig, K9CT, the CWops treasurer.

Additionally, Art Blank, WA7NB sent this note to K9CT: "On behalf of John Schreiner (N2LK) and myself, We'd like to thank you for your generous sponsorship to the CQWW CQ contest. I received my beautiful plaque yesterday and have already mounted it on the wall in my shack for all to see. It was a big surprise getting it, as I did not expect or imagine winning from Anguilla. We had a lot of fun that week and now we will have a remembrance of the trip forever."

Two CWops members were featured in the August 2020 issue of QST.

George, W0PHX, was featured in the "Member Spotlight" column. He has worked as a police officer, an emergency medical responder and a structural and wildland firefighter. He was originally motivated to obtain his amateur radio license after learning of the ways amateur radio can be beneficial during emergencies.

Chris, W4ALF wrote a feature story on his bicycle HF mobile installation and operation, which includes an Elecraft KX2 and a vertical antenna with a coil that can be tapped for operation on various bands.

Corinne Kenney, ckenney@arrl.org

Member Spotlight

George Burger, W0PHX

George Burger, W0PHX, has had over a decade of experience in public safety. He's been a police officer and emergency medical responder since 2007, later becoming a structural and wildland firefighter. Having to act under pressure is vital for his career, and he said his involvement in amateur radio is a huge asset.

"proved that amateur radio is still a viable asset to emergency management."

George also explained that his involvement with amateur radio has changed his mindset in regard to how he addresses emergencies. He said amateur radio — especially portable operating — has improved his communication, multi-tasking, quick-thinking, and problem-solving abilities. "Good communication and the ability to think outside the box keeps me calm when things get tough," he said.

Benefits of Amateur Radio

Since 2010, George's career path has been intertwined with his interest in amateur radio. He obtained his Technician-class license after learning of the ways amateur radio can be beneficial during emergencies. "In the event of a disaster or anything that is outside the normal response for first responders, communication is affected," George said. His respect for the amateur radio community only grew since then, as George began to understand how it can be a valuable resource.

After George was appointed as Emergency Management Director for the city of Ely, Minnesota, he planned a joint communications exercise to test the communications coordination among several agencies. The exercise incorporated a marathon where amateur radio operators were providing race communications support. Using a joint communications control station, amateur radio operators worked alongside municipal and federal agencies to relay messages and ensure that the event ran smoothly. "Having amateur radio operators available as a resource can help restore organized communication," George said, adding that the exercise

always more to learn. For instance, when he'd first become interested in amateur radio, he wanted to get into DXing, but the thought of learning Morse code was too daunting for him. "After much encouragement from an avid CW operator, Jess Guadagnola, WBLEN, I learned Morse code on my own and later enrolled in the CW Operators Club (CWops) CW Academy to sharpen my skills." Now, CW is one of his favorite aspects of the hobby.

Always Learning

Amateur radio has also given George a way to explore new passions. He was inspired by his ongoing interest in computers, electronics, and amateur radio to go to college, and he is currently pursuing a degree in information technology from Arizona State University.

Additionally, George used his interest in travel to sharpen his portable operating skills, challenging himself to make as many long-distance contacts as he can while on the go. He also became involved in ARRL's National Parks on the Air program, which motivated him to upgrade his license to General class, and Extra class soon after. After NPOTA, he became involved with Summits on the Air (SOTA) and the World Wide Flora and Fauna (WWFF) programs.

George has found so many different avenues to explore within ham radio, which has proved to him there's

Leadership has always been an important quality for George, and amateur radio has only strengthened his sense of responsibility, especially because of the many mentors he's had within the amateur radio community. Motivated to also give back, George helped start the Vermilion Range Amateur Radio Club, K2VRC, became an advisor in the CW Academy, and became a Volunteer Examiner.

George is very active, always finding new ways to get involved. You can catch George on the air from Ely, Minnesota; Maricopa, Arizona, or mobile, "most likely up a mountain or in my Jeep running around," he added.



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Bicycle Mobile on the HF Bands

An easy way to implement a mobile radio system, for the operator on two wheels.

Christian Bravo, W4ALF

After experimenting with pedestrian mobile and being active with Summits on the Air (SOTA), I was looking for a new amateur radio challenge. My experiences with portable ham gear led me to the idea of adapting my mobile setup to fit on my bicycle. The two-wheel setup would allow me to be even more mobile, and still be able to communicate on the HF bands.

The Bike

I utilized my 16-inch wheel-folding bike for its compactness and dimensions, allowing me to transport it with minimal hassle. Any bike that can fit a rear bike rack attached to the frame will work. Avoid seat tube-style rear rack carriers, as they don't provide the stability needed to ride with a vertical antenna attached. The

I've found that most successful bicycle HF implementations were for the VHF/UHF bands. The feature-rich and highly compact low-power operating equipment available makes it easy to implement a practical mobile system on two wheels. In addition to being portable, I wanted my system to be lightweight and compact.

The Radio Setup

My portable operation has had success with the Elecraft KX2 transceiver, however, other low-power radios are also easily adaptable to the bike, such as the Yaesu FT-818 or the Xiegu X5105. Using the Elecraft KX2 meant I could operate on the voice and CW modes when I was stationary. Because my radio has the 10.8 V internal battery and the antenna tuner option, it makes for a compact setup. The radio is mounted directly over the handlebars using a RAM Mount ball and joint mount.

I used the KX2 Mount by Side KX to secure the radio to the RAM Mount system. This plastic radio mount easily attached to the RAM Mount system with a VESA bolt pattern that both products support. I made an easy microphone mount with a plastic clip I found at home, which I zip-tied to the handlebars. I added a second RAM Mount to hold my iPhone, and downloaded the HamLog app, so I could use my phone as a logger. The app also allows you to easily export your log in ADIF format so you can import it into your main logger software.



Christian Bravo's, W4ALF, bicycle mobile setup.

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Announcing the 2020 CW Open

[Bruce Meier, N1LN](#)

The CW Open for 2020 is now just around the corner. This year might be a record setter for both participation and for QSO counts. If the weekly CWTs, ARRL Field Day, the IARU contest and more are any indication, it should be a great time. Hopefully the propagation will also be favorable and the bands will be filled up with GLOBAL signals from all three ITU Zones.

As in the past, the CW Open is scheduled for the first weekend of September. The three sessions are as follows:

Session	Date	Time
1	Sept 5	0000 – 0359z
2	Sept 5	1200 – 1559z
3	Sept 5	2000 – 2359z

We all probably have more time on our hands this year, so hopefully participation will be up for all three sessions. However, should your schedule not allow three session participation, please jump in for 1 or 2 sessions. It is also a great time to start thinking about putting your 2020 teams together. The website has been updated for 2020 (Thanks Theo – SV2BBK), so if you have your team feel free to get it registered. Just follow the instructions on the CWops web site on the CW Open drop down.

<https://cwops.org/cwops-tests/cw-open/>

The rules this year will be the same as for the 2019 CW Open. The only change for 2019 (that will remain for 2020) will be the elimination of the 100 QSO rule to qualify for a Regional award. It has always been easy for Region 1 and 2 to qualify for the awards, but the propagation makes it hard to impossible for Region 3 to reach the old 100 QSO minimum. With that award qualification rule once again eliminated the Region 3 disadvantage is gone!

I am also very pleased to report that ICOM will once again be the CW Open Awards Sponsor. If you have previously won one (or more) of these trophies or plaques, you know they are really outstanding. I have not yet been so fortunate but will be trying to qualify again this year.

Finally, I would like to introduce you to the current 2020 ITU Regional Communication and Promotion team. A couple of past year team members are back again (THANK YOU !!) but there is an opportunity for another Region 1 member and multiple Region 3 members.



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ITU Region 1	G3LDI	Roger
ITU Region 1	F6HKA	Bert
ITU Region 2	K7SV	Lar
ITU Region 3(north)	- OPEN -	
ITU Region 3(south)	VK2BJ	Barry

In the coming weeks you will be seeing additional communications coming from your Regional CW Open representatives and myself. Please look for them and mark the CW Open date and session times on your calendars. Remember, you don't need to be on the Communication Team to spread the word. Please feel free to forward any CW Open messages to your respective clubs and reflectors. Also, you don't need to be a CWops member to participate in the CW Open.

Thanks for participating in the 2019 CW Open. I hope to have you in my log for all three sessions of the 2020 CW Open.

73,

Bruce, N1LN CW Open Manager

Announcing the 2020 Awards for Advancing the Art of CW

[Riki Kline K7NJ](#)

CWops announced the winners of the 2020 Awards for Advancing the Art of CW in a July 28 video conference.

[Essex \(UK\) CW Club](#), nominated by Bob, G4HZV, "provided a focus for CW interests, and then started organising their 'CW Bootcamps'. The bootcamp is a day of intensive CW teaching. Thanks to Essex CW's lead, there are now CW bootcamps held all over the UK and they are making a real difference to CW interest and activity. Essex CW Club lends out their teaching equipment to other local clubs when needed and helps by suggesting teaching programmes."

Some additional noteworthy activities by the club:

- Weekly 2M and 80M CW nets.
- Promotion of CW at local radio clubs.
- Stimulating CW activity by a yearly award program.
- Sponsoring a CW Activity Week - Especially making new CW operators welcome by en-

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- encouraging sending slowly.
- Encouraging operation in CW contests including the RSGB National Field Day, CW DX Contests and others.
- The club teaches weekly CW classes, currently being taught online instead of the traditional in-person format.

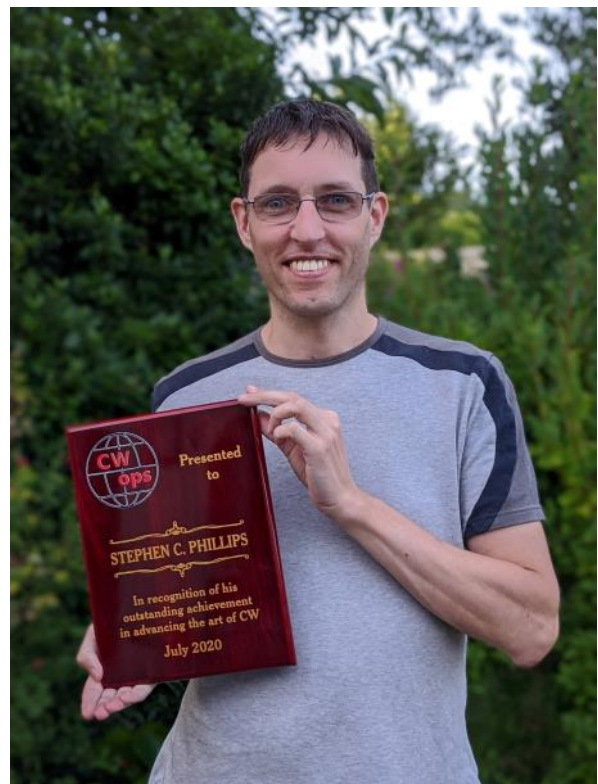
The Essex CW Club was represented in the video conference by two of its members. Dean, G4WQI, the club chairman, teaches improving speed and boosting confidence to those already knowing CW (picture, right). Andy, G0IBN, is a Founding Member of the Essex CW Club and a Bootcamp Tutor. He teaches complete beginners, taking them up to 10 WPM.

Stephen C. Phillips was nominated by Joe AA8TA, who noted, "Stephen is the author and maintainer of the Morse code trainer that has been used by thousands of students in the CW Academy to help them learn Morse code. This web tool was created with the advice of Rob, K6RB, primarily for Level 1 students but there are some exercises on the web site that can help students at higher levels.

"Stephen has maintained this tool for several years and is very responsive to deal with issues and implement new features. One issue that I know he dealt with is an issue with the Firefox browser that a teacher outside of the CW Academy reported. He also implemented an option that allows practicing with a random mix of characters and helps to build fast recognition of characters. These are just two examples; Stephen is quick to respond and is always cheerful and tries very hard to make this tool as useful as possible.

"One might think that he is doing all this because he is collecting usage fees but, in fact, he maintains this at no charge to anyone. He does state that contributions would be welcome but in all the years that this site has been running he has never hinted that he might need funds or he would shut it down.

"It is hard to over-emphasize how important this site is to the success of the Level 1 program of the CW Academy. For the upcoming January-February semester, we have close to 750 students signed up and over 300 will, hopefully, take a class. Most of them, will be



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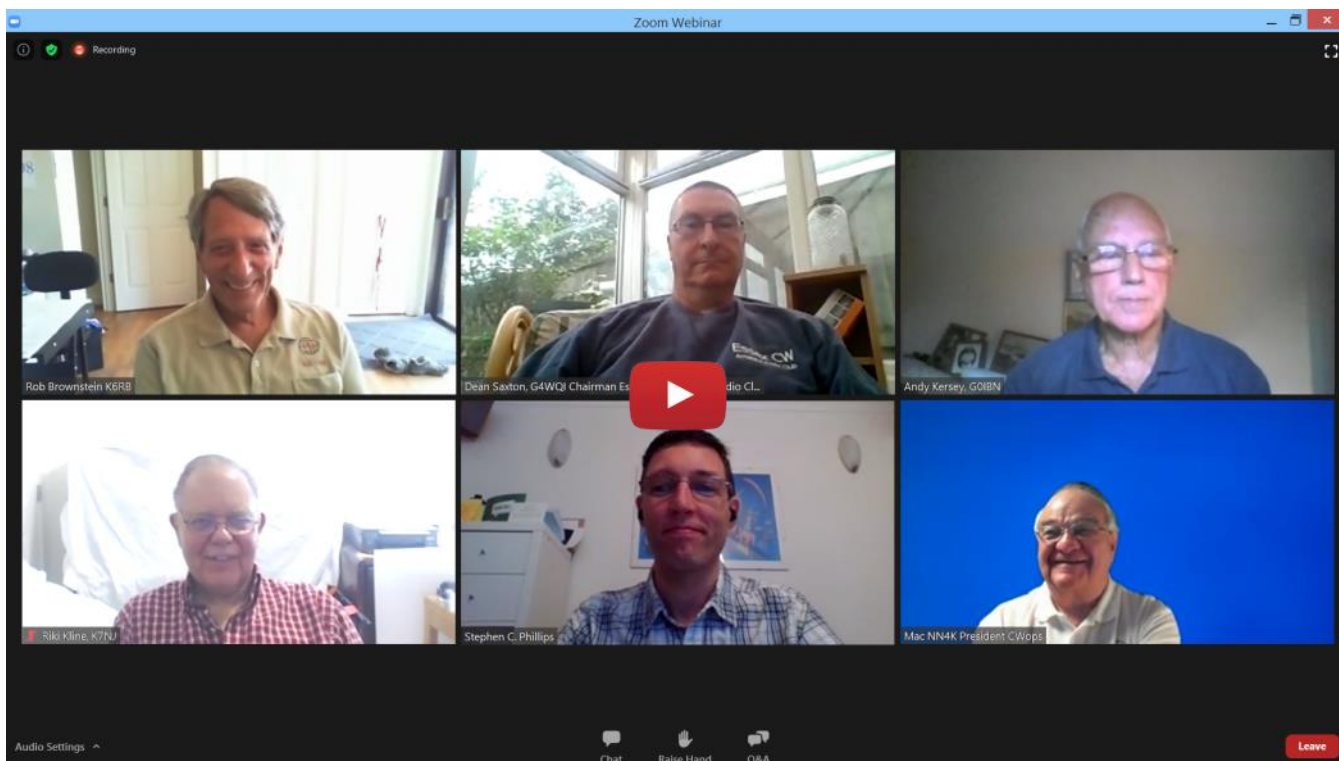
in a Level 1 class. For students in our new Level 2 Prep class, they can also use some of the features that Stephen implemented. This site is as integral to the CW Academy as our advisors are. If it went away, we would be hurting.

"I hope that you might see the significant contribution that Stephen has made to the hundreds of people who have learned Morse code and some of them now have CWops member numbers."

David De La Haye, M0MDB, the Region 12 representative for the RSGB, spoke during the video conference to congratulate the winners. He noted that the RSGB "is still very keen to promote CW" and that CW is still of interest, especially where presentations are made to the public, and especially among young people.

Thanks to everyone who made these awards possible beginning with fellow Awards Committee members NN4K, 4X6GP, AC2K, EA4M, and K6XT. The committee evaluated all of the received nominations and made its recommendations to the Board for final approval. Normally, the awards are presented at the CWops dinner during the Dayton Hamvention which, unfortunately, was cancelled this year. Rob, K6RB, came to the rescue and made the arrangements for the webinar, and also served as its host.

73, Riki, K7NJ Awards Committee Chair



Video conference participants included, l to r and top to bottom: Rob, K6RB, Host; Dean, G4WQI and Andy, G0IBN, Essex CW Club; Riki, K7NJ, Awards Committee Chair; Stephen C. Phillips; Mac, NN4K, CWops president. [You can view the event on YouTube.](#)

What is this Frequency Measuring Test Stuff?

[James M. Galm, W8WTS](#)

Introduction

The objective of a Frequency Measuring Test (FMT) is to determine the transmitted frequency of a signal received off the air as accurately as possible. The signal is available to measure for a limited period of time usually with measurement runs on different bands, one band after another.

Several times a year, FMT fans warm up their receivers and calibrate their references. At the appointed time, a designated station transmits a signal on a “nominal” frequency while the participants do their best to measure the frequency of the transmitted signal, based on what they receive. After the measurement runs, participants post their measurements to web sites along with descriptions of their techniques and equipment. The results are sorted and posted on a scoreboard, along with the actual frequency of the transmitted signal. It is a friendly, fun, nerdy competition.

Part of the charm of FMT is that it appears easy to do, until one actually tries to do it. Errors creep into the frequency measurements. Some errors are deterministic while others appear as random noise. Some error sources are within one's control while others are not. Figure 1 shows how WWV's received signal drifts over a three Hertz span during a two-hour period from the receiver fan cycling on and off. It is easy to get hooked on FMT by the technical challenge, the extremely intelligent people who participate and share their knowledge, and the pride of continuously improving one's measurements.

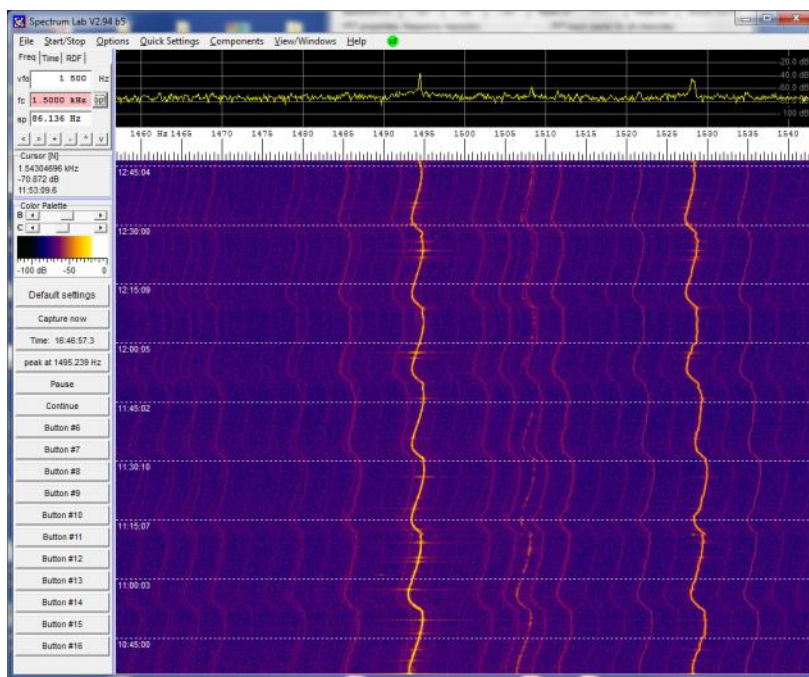


Figure 1. The received signal from WWV varies over a 3 Hz span due to the receiver fan cycling.

Improving the accuracy and improving the precision of a measuring system can both be accomplished by understanding the sources of error and systematically reducing them. Accuracy of a measurement is defined as the difference between the measurement of a quantity and the known true value of that quantity. In an FMT, accuracy is a function of the receiver oscillator and synthesizer frequencies relative to known true values. The signals transmitted by WWV, CHU and others are of known frequencies, controlled to the best accuracies possible. Calibrating a receiver dial to read 10.000000 MHz at WWV reduces accuracy error. Precision of a measurement is defined as the repeatability, or randomness of a set of measurements made of the same quanti-

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ty. In an FMT, precision is the ability to measure the over the air (OTA) signal multiple times during its available period and achieve the same result from each measurement. There are many techniques for improving FMT precision, such as using low noise, low jitter reference oscillators, or post processing the measurements to average out the effects of noise. Present day FMTs give hams the opportunity to test their skills in methodically improving the accuracy and precision of their frequency measurements.

A bit of FMT History

The ARRL sponsored FMTs were initially coupled with the Official Observer program, created in the 1930s to provide feedback to operators whose signals were out of band, poor quality, or otherwise needing improvement. As the OO program evolved, there were five different classes of OO certifications. Achieving higher levels of OO certification required participation in FMTs and demonstrating the ability to measure an over the air frequency to progressively higher accuracy. Often W1AW transmitted the FMT signal, while a professional frequency measurement laboratory, called the umpire, measured the FMT signal and reported the results.

During the 1940s, FMT results were reported in percent error. Qualifying measurements were often 0.003%, which equates to 30 PPM or 420 Hz for a 20 m OTA signal. This was quite an accomplishment given the means available to hams at the time. By the 1960s, measurements with better than 10 PPM were common, accurate to within 140 Hz for a 20 m signal.

In the 1980s, computers, better phase lock techniques, and temperature controlled crystal oscillator (TCXO) frequency references brought the standard for quality measurements within 10 Hz of the transmitted frequency. Any measurement within 1 Hz was considered “perfect” as the umpire reported OTA test signal measurements to 1 Hz.

FMT's Around the World

The Frequency Measuring Tests that are the focus of this article are open to hams and SWLs anywhere in the world, though the vagaries of propagation can make signals difficult to measure outside of North America. Are FMT events being held on other continents, sponsored by either national organizations, clubs or individuals? Please let us know about them by posting information to the CWops listserv.

Techniques and equipment available today are vastly superior to those used in the previous century. The as-transmitted frequency of FMT signals are known to 0.001 Hz and most OTA measurements are within 1 Hz, or 71 parts per billion (PPB) on 20 m. CWops member Connie, K5CM, has become the guru of modern FMT, providing the accurate, stable test signals used for most FMTs. Connie has a wealth of information on FMT theory and practice on his web site, <http://www.k5cm.com/>.

How it's Done in Powers of Ten

Anyone who has seen the classic short film, “Powers of Ten” created by Charles and Ray Eames in 1977 knows that adding or taking away a zero from the measured scale of a quantity can have dramatic effects on the quantity. This section describes the general ways that hams can and do

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measure OTA frequencies. There are broad exceptions to these descriptions and overlap between them. The idea is to give a general overview of what to expect in terms of FMT at a few different powers of ten.

To achieve 1 kHz accuracy, any modern, functioning receiver manufactured in the last twenty years will do the job. The stability and precision of twenty first century ham equipment is awesome compared to previous generations. Consider that any contemporary receiver can make measurements comparable to the best possible results from the most skilled hams using state of the art equipment when FMT was originated.

100 Hz accuracy is achievable with ordinary modern, functioning receivers, but will probably require that the receiver be given time to warm up and then be calibrated to WWV. Most hams who are interested in their rig's performance will perform periodic calibration. Modern receivers usually have a master oscillator that clocks the digital synthesis and PLL circuits creating the IF signals. If the master oscillator is set to zero beat WWV on one frequency, it is generally good to go for 100 Hz.

At the 10 Hz accuracy level, new sources of error begin to add significant bias to the measurement. Variations in room temperature and the fans in rigs cycling on and off can make crystal oscillators drift with temperature, requiring temperature-controlled crystal oscillators. This is the limit at which listening to signals zero beat with ears or watching meters with eyes starts to fail.

Receiver architecture can creep up at this level. For example, the FT-1000MP has a master oscillator that can be temperature controlled that generates the first and third IF frequencies and the carrier injection. However, there is a separate crystal oscillator for the second IF that can add error to the measured frequency.



Figure 2. W8WTS uses an HP 3336C Synthesizer/Level Generator referenced to a GPS disciplined oscillator to create a reference signal.

In the 1 Hz accuracy range, receiver displays and the PLLs that drive them are no longer useful. The audio output from the receiver needs to be analyzed by external means such as SpectrumLab or FLDigi software and stable, well calibrated computer sound A/D converters. External signal synthesizers such as the HP 3336C are often used to synthesize highly accurate reference signals against which the FMT OTA signal can be compared. GPS disciplined oscillators (GPSDO) often replace TCXOs at this level. Figure 2 shows the author's FMT setup and Figure 3 (next page) is the setup measuring WWV at 5 MHz. Doppler shift of the received OTA signal becomes an error term due to the non-constant length of the path from transmitter to receiver as the refracting layer of the ionosphere changes altitude. Figure 4 (next page) is the raw WWV measurement data collected over a seven minute measurement.

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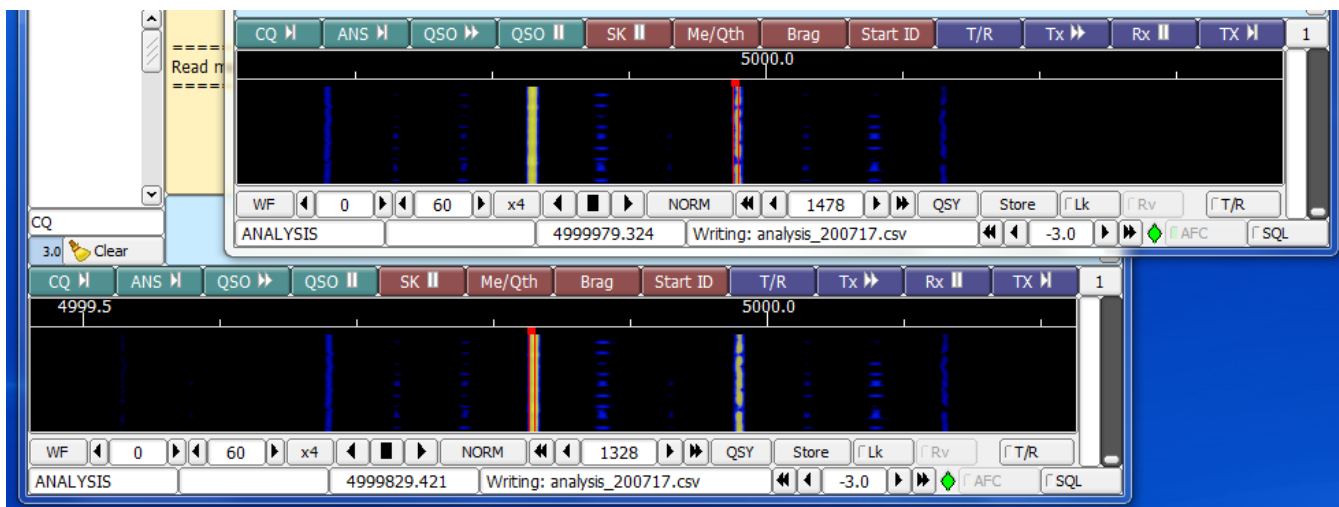


Figure 3. The upper instance of FLDigi is locked to WWV at 5 MHz. The lower instance of FLDigi is locked to the HP 3336C Synthesizer/Level Generator tuned 150 Hz below WWV.

At 0.1 Hz accuracy, all frequencies need to be synthesized from a GPSDO or a Rubidium clock. The analysis software needs to track and process a large number of measurements to statistically reduce precision error in the measured difference between the reference signal and the FMT OTA signal. Compensating for Doppler shift becomes critical at this accuracy, sometimes done by making meas-

urements of standard frequency stations at frequencies above and below the FMT station before and after the measurement run, then analyzing the data to “triangulate” the Doppler shift at the time and frequency of the FMT. The techniques and equipment vary greatly from participant to participant. They are described in the FMT results pages and are extremely interesting to read.

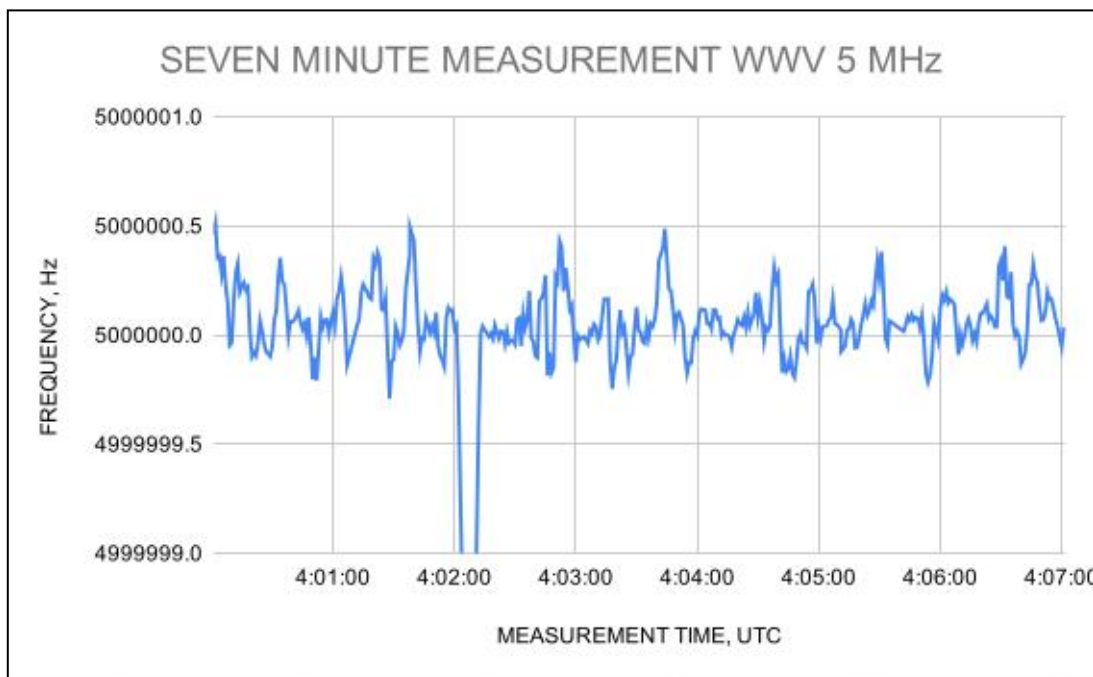


Figure 4. Raw data from a seven minute measurement of WWV at 5 MHz. Some additional processing is needed to remove the outlier data points and improve the statistics.

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FMT in 2020

The ARRL currently sponsors official FMT events twice each year, in April and in November. There are announcements printed in QST for their respective tests, where the time and approximate frequency are shown. The format has changed very little since 2010. K5CM and occasionally other stations transmit the FMT signal. A typical FMT starts with a call-up and ID of the FMT station for a short time. Then, a measurement period of continuous steady carrier is transmitted for two minutes. After that, the process is repeated on schedule on other bands.

Each participant enters their measurements on the FMT data entry web page, <http://fmt.arrrl.org/fmtentry.php>. After the entry deadline, the results are posted at <http://fmt.arrrl.org/fmtcurresults.php>. The goal is to make the “green box” of stations whose measurements were all less than or equal to 1 Hz from the transmitted frequency. In recent tests, there has been an Honor Roll of stations whose measurements were all less than or equal to 0.1 Hz of the transmitted frequency. One has to be very, very skilled to make the Honor Roll.

Connie, K5CM occasionally holds impromptu FMTs. The best way to find out about K5CM impromptu FMTs is to subscribe to the groups.io email group named fmt-nuts at <https://groups.io/g/fmt-nuts>. For these FMTs, Connie transmits the test signal, collects the measurements and posts the results on his web pages. Reading the technical descriptions that participants include with their measurements are fascinating. Connie is to be commended for all of his extra effort in organizing these FMTs, as well as for providing the big signal for everyone to measure.

Hopefully this short description has peaked the curiosity of a few CWops members. The author was encouraged to try FMT by colleagues from the Case Amateur Radio Club, W8EDU. Club advisor David, AD8Y and his engineering students consider FMT an important metrology experiment as well as an interesting club activity. They score consistently high on the FMT scoreboard. The author hopes to share the intellectual fun and competitive spirit of FMT with CWops members. If a few CWops become hooked on FMT, all the better.

ARRL
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Frequency Measuring Tests

ARRL Home FMT Home Data Entry Current FMT Results Historical Results

Results - April 24, 2020 FMT

Actual Radio Frequencies (Hz):

	80m	40m
K5CM	3,598,427.68	7,065,237.67

K5CM All (<=0.1 Hz):
AD5MT, DK4YJ, K0WM, KB3UMD, KD2BD, KI5EE, N7WS, N8OBJ, N9CIF, N3OU, W3JST, W9INE, WA2IKL, WA5FRF

K5CM All (<=1.0 Hz):
AA6LK, AB4EJ, AB4RS, AC9LV, AD5MT, AD8Y, AF9A, AG6SV, AJ4YA, AJ5P, DK4YJ, K0WM, K3KSB, K4PPK, K5ND, K5RKS, K6FOD, K6OQK, K6UM, K9JM, KA1BQP, KA7OEI, KA8BRK, KB3UMD, KD2BD, KE5O, KF7NP, KG5X, KI5EE, KJ6HYC, KJ7E, KN1H, KQ6ZR, N0PFE, N1IRO, N3CRT, N3FG, N5KAE, N5NHJ, N7UTE, N7WS, N8OBJ, N8OOU, N8OQ, N9CIF, NA2SW, N3OU, PE1FJN, VE2IQ, VE3GSO, VE3OAT, VE3YX, VE6CB, VE6GRT, VE6IXD, VE6KZ, W1JV, W1PJE, W2EMN, W2FD, W2TX, W3JST, W3JW, W4EDX, W4ENN, W4IVF, W4RYF, W4VU, W5EEG, W5LAC, W7SUA, W8TM, W8WTS, W9INE, W9ZB, WA2DVU, WA2IKL, WA5FRF, WA5UCW, WA7BNM, WA7X, WB2CMF, WB6HYD, WB6RJH, WB8TFV, WD4IYE, WQ8T, WW3S

K5CM 80 (<=1.0 Hz):
AA6LK, AB4EJ, AB4RS, AC5JM, AC9LV, AD5MT, AD8Y, AF9A, AG6SV, AJ4YA, AJ5P, DK4YJ, K0WM, K3KSB, K4FZU, K4PPK, K5ND, K5RKS, K6APW, K6FOD, K6OQK, K6UM, K9JM, KA1BQP, KA5QEP, KA7OEI, KA8BRK, KB3UMD, KD2BD, KD5FX, KE5O, KF7NP, KG0HY, KG5X, KI5EE, KJ6HYC, KJ7E, KN1H, KQ6ZR, N0PFE, N1IRO, N3CRT, N3FG, N5DM, N5KAE, N5NHJ, N6PE, N7EP, N7UTE, N7WS, N8OBJ, N8OOU, N8OQ, N8TW, N9CIF, NA2SW, NF7R, N3OU, NS3DX, PE1FJN, VE2IQ, VE3GSO, VE3OAT, VE3YX, VE6CB, VE6CCM, VE6GRT, VE6IXD, VE6KZ, W1JV, W1PJE, W2EMN, W2FD, W2TX, W3JST, W3JW, W4EDX, W4ENN, W4IVF, W4RYF, W4VU, W5EEG, W5LAC, W5ZBT, W7SUA, W8TM, W8WTS, W9INE, W9ZB, WA2DVU, WA2IKL, WA5FRF, WA5UCW, WA7BNM, WA7IRW, WA7X, WB0LXZ, WB2CMF, WB6HYD, WB6RJH, WB8TFV, WD4IYE, WQ8T, WW3S

K5CM 80 (>1 to <=5 Hz):
KB7IJ, N0AN, N1HAC, N2GL, W4WJ

K5CM 80 (>5 to <=10 Hz):
K7NG, NN5G

A screenshot of the April 2020 FMT results web page. The goal is to make the “green box” of stations whose measurements were all less than or equal to 1 Hz from the transmitted frequency.

Towers and Antennas – Lessons Learned

Tom Taormina, K5RC

Over the years, I have been the chief engineer on five multi-tower contest stations. With each installation, I have learned lessons in antenna construction and tower installation, mostly by trial and error.

My first tower was a guyed 70' crank up with a Classic 33 tribander and a Hy-Gain 2el 40. The delivery service rolled the tower off the truck onto my front lawn. The first time we cranked it up, we discovered that the legs were distorted. We put a 2 x 4 piece of wood in between the sections and never cranked it down again until we moved. One of the operators would climb the tower about every 6 months to change out the HAM-M rotator. I did manage to win SS CW in 1975 with that "array." Where there is a will, there is a way. The Texas DX Society "Rowdies" were eager to help me put together a multiop, multi-tower competitive contest station. I was in my 30's, raising two small boys. We had to live in a subdivision for the kids, so I found a house in the same subdivision that backed out onto an old gas well field. I managed to lease 5 acres and the K5RC/K5GA station was born. K5GA sold his Volkswagen for seed money.



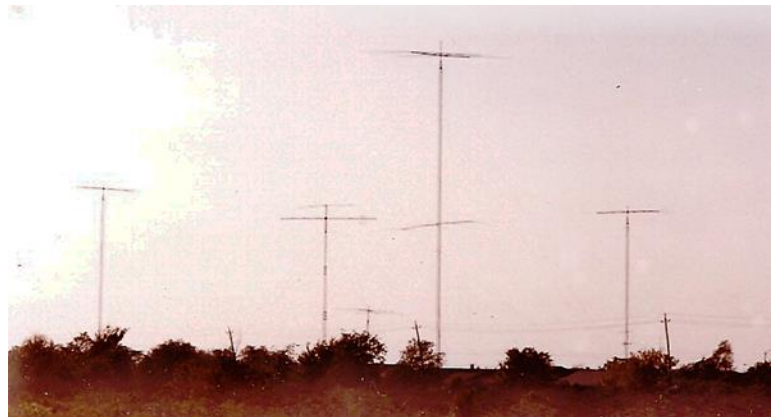
WASLES (K5RC) 1973

I had worked at Madison Electronics during my college years and we received a lot of "help" from K5AAD with loans of Drake and Collins equipment. I started a repair business for Drake and Collins. Whatever I had earned that week would be spent on Saturday for more cable clamps and other supplies.

The coax was aluminum cable TV 75 ohm hardline. A case of beer to the local installers would get us regular deliveries of the roll-ends of the cable. The six towers we ultimately put up were scrounged and donated.

The guy wires were made of 3/8" steel. A local radio station had a delivery service drop a 1,000' roll and break the reel. We dug a hole under the reel and had a tow truck drop at my house. We spent many days cutting 25' pieces and connecting them with strain insulators.

For more than a year, every Saturday was spent building antennas and erecting towers. The biggest folly was the 40 m tower. It was 140' of TV tower, 11" on a



K5RC/K5GA Station Before Hurricane Alicia

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face, riveted together. It was guyed every 20' with this massively heavy guy wire and insulator assembly. The guy anchors were 5' holes with Rohn guy rods and cement mixed in a wheelbarrow.

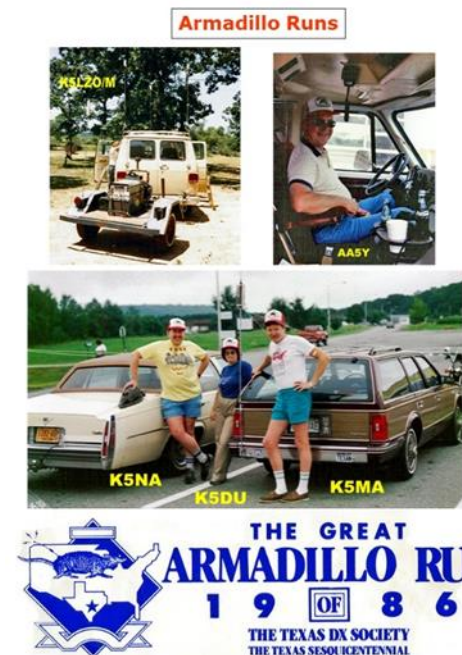
At the top was an original KLM 4 el 40 turned with a Tail-Twister. More accurately, it held a series of KLM 4 element 40's. The insulators would break frequently, and the insurance company would replace the antennas. After the fourth one broke we found a 3-element full sized Telrex 40 in the back of Madison Electronics. K5ZD made frequent trips to the top of the tower to replace the rotator. We had an inventory of Hy-Gain rotators that were constantly going back and forth to the rotator repair company. We did manage to win a couple of CQWW DX Contests, multi-single.



NA5R Before and After Hurricane Alicia

One of the helpers and operators was NA5R. He saw the shortcuts we had taken and offered to build a new station before the K5RC/K5GA station fell apart. He bought a 5-acre lot in a rural neighborhood. We put a double-wide mobile home on it. My directive was to do this one "right." No shortcuts, no compromises. We acquired two truckloads of AB105 tower. We were well along in building 4 towers and had run several contests from there. Then came Hurricane Alicia in the summer of 1983. We lost all the towers at NA5R. At the K5RC/K5GA station, we lost all the towers except the 70' tower next to the house. Ironically, all the other towers were on the ground, but the weakest of the towers, the 140' 40M tower broke in the middle. KG5U lives at that house and uses the Rohn 25 that did not fall.

We took a hiatus from large contest stations and focused the resources of the Texas DX Society on the Great Armadillo Runs. We mapped out the 254 counties in Texas and teams took assignments to drive the counties during the CHC CW contest. The first year we put on all 254 counties. By the third year, we had activated every county in the 5th district. For the Texas Sesquicentennial in 1986, we had the Governor proclaim Armadillo County, which is now a deleted



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county. We also attempted to activate every county in the US.

We also began contest expeditions to Nuevo Laredo Mexico for ARRL DX contests. The operations were a large-scale Field Day on the ranch of XE2FU. I understand one of the Rohn 25 towers from the K5RC/K5GA wreckage is still standing at the site.



XE2FU



K5XI

After changing jobs and wives, we moved to a 5-acre ranch in the country. My wife, K7AFO, and I started the Stephen F. Austin Radio Club and we soon had three towers and were training new operators.

K5XI approached me about building an extremely competitive contest station. He had purchased 10 acres in a very rural area and had a mobile home for the operating and living quarters.

Midge and I became the design team, general contractors and we even built a building for the cable entry and to store the antenna parts. Sid wanted to be the loudest Texas station on 20M, so we had a professional tower crew build 4 towers for 40 m through 10 m. The 40 m tower was

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140'. The 15 m tower was 200'. The 20 m tower was 250'. During that build, I discovered how to professionally erect towers and how many dangerous mistakes I had made in the past. The tower crew had never put up large Yagi's before, so we traded learning moments.

The neighbors in the trailer community used the flashing red beacon light as target practice. The K5XI station did multiops for a few seasons before Sid got transferred to Phoenix and the station was dismantled.

In 1996, I was doing consulting work for K7BV at his fire protection companies. Every month, Midge and I would make the circuit from Houston to Denver, Salt Lake, Reno, and Portland. The boys were out of college and we decided to look for a more favorable quality of life. We had every poisonous snake and insect in America on our ranch. She would make house hunting trips while I was working.

Neither Denver nor Salt Lake were to our liking, and we closed those two companies and concentrated on Reno and Portland. Dennis moved to Reno and Midge found our ten acres on a ridge-line at 6,500' with clear shots to Europe and Asia. We have been here 23 years.

Since Nevada was less than ideal for DX contests, Midge "suggested" we keep the towers to three and concentrate on Stateside contests.

My Elmer was Sam Harris, W1FZJ. He had a massive VHF station in the Rhododendron Swamp in Massachusetts. It was at W1BU that I learned my pragmatic approach to building a station. He had four 140' Rohn 6 towers loaded with VHF arrays. He cut off pine tree stumps of the proper diameter and put the first section over the stump. He then found pine trees every 120 degrees and used them for guy anchors.

As we surveyed our ten acres of pinion pine trees, it seemed logical (and cost effective) to put up the first two towers using the same pine tree engineering. They were 70' and 40' and K7BV and W4AN did well in the first few SS CW contests, while I managed win my only first place in NAQP CW.

Then fate stepped in. We hosted the Great Armadillo Reunion in 2006 and about 30 TDXS Rowdies made the trip from Houston. I had lost contact with NA5R over the years, but he came up and we operated field day, just like the good old days, except we used the existing antennas, a generator powered by biodiesel fuel and a food catering company.

I'm not exactly sure how the conversation started, but Grady told me he had just sold his company and was retiring. He offered to pick up where we left off in 1986 and build a superstation at our QTH. After consuming many adult beverages, the scope of the project kept growing. A 40 m stack and an 80 m beam were mandatory.

Then he proposed buying a construction crane and building a 160 m beam on the boom. It took months to talk him out of a horizontally polarized antenna on 160 m. Madison Electronics had closed and K5AAD donated 140' of Rohn 45, phillystran and several antennas from their dismantled station. That became the 20 m 140' tower.

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As Grady was investing in equipment and antennas, we made a trip to several dismantled stations in Northern California and came back with a 40' trailer loaded with Rohn 45, antennas and more Phillystran.

My prime directive was to hire professional tower riggers to avoid the mistakes we had made with volunteer labor in Texas. We went through at least four "professional" ham tower people and discovered, much to our dismay, that each of them was pragmatic, disorganized, and never quite finished the jobs.

One of the "professionals" raised the 70' pine tree tower to 140' and put in concrete anchors for the top two guys. It will become apparent in a few paragraphs the motivation for me writing this article.

Now with two 140' towers and new neighbors emigrating from California, the interlopers began complaining to the Building Department. Somehow, between 1997 and 2007, the County code had been amended from no restriction on towers to classifying any tower as a structure, limited to 40'. There were no CC&R's, so the Building Department told them I was grandfathered in.

We acquired two monopoles. Not being familiar with tubular towers, we decided to hire a Professional Engineer to design the final two towers from scratch. One would be 120' with stacked Yagi's for 10 m and a 2 el 40 m. The other would be 175' with stacked 3 el 80 m beams and stacked 15 m beams.



120' Monopole for 40/10 175' Monopole for 80/15

We hired professional surveyors to layout the base and guy anchor configuration. Within an hour, they informed us that the house was not where it was shown on the official plat plan. That "official" document showed the house in the middle of the ten acres, but it was actually 15' from the eastern property line. One tower and one guy anchor were on other people's property.

Reporting that error to the Building Department started a virtual war and I was dubbed the Tower Tyrant. At the same time, we took the wet-stamped drawing package from the PE for the mon-

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opoles and submitted it and a building permit request to the County Planning Board.

There are only 4,000 people in the entire County, so word of the building permit request spread like wildfire. The company that sand blasted and powder coated the sections of the monopole made things worse by delivering them to the bottom of my driveway for all to see.

That promulgated protest meetings, petition circulation and, since it was the beginning of the 2008 housing disaster, that it was alleged that me and my towers were responsible for the entire housing market collapse.

The mob somehow convinced the Deputy DA to have the Building Department issue a 10-year retroactive stop work order. That caused us to file a suit against the County in Federal Court. Four years later, and with the hard work of K1VR and PRB-1, we were given a Special Use Permit for eight towers.

We hired a cell tower company to put up and erect the monopoles. K7PN made the rotating guy rings and fabricated the massive guy anchors from I beams. The bases and guy anchors took five truckloads of concrete. We built all the 10 m and 15 m OWA Yagi's from DX Engineering aluminum and their hardware.

The construction and beam erection required a 50-ton crane with a 200' boom. We buried 2,000' of Andrews Heilax. K7NV built the prop pitch rotators for the monopoles. N6BV worked his Terrain Analysis magic for heights and takeoff angles.

At the time, the only company making 80 m beams was OptiBeam. We had two of them shipped from Germany. Unfortunately, they stayed in the boxes during the 4-year lawsuit. K6NA and K7NV



WA5LES (K5RC) 1973

meticulously put them together. They replaced the provided rope trusses with Phillystran.

When they were finished, they were a magnificent sight and they performed extremely well. We live on a ridgeline with at 300' drop-off, so the top 80 thought it was at 475' above average ter-

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rain.

Within a month we had an 80 MPH windstorm. The top beam shed its elements. The bottom beam shed elements and the boom broke in half. K7NV got the alleged aluminum specs from OptiBeam and worked relentlessly with his Yagi Stress software to redesign the element and boom trussing.

OptiBeam sent us new elements, but we paid the air freight from Germany. We decided to put back up just the top antenna. It had hundreds of feet of Phillystran trussing. The elements bent and broke a few days after we put it up.

After examining the aluminum, we found it to be an inferior grade of seemed tubing. K7NV redesigned the antenna using American aluminum, Yagi Stress, and antenna modeling programs for the design. He then had it put through wind tunnel simulations for where to place the trussing. It has now been up for three years with no more mechanical failures.

A few months ago, we replaced a tower that was used for VHF with 25' of Rohn 55 for a 6 m EME array. Since it is a new foundation we went through the permitting process because there no provision in the Special Use Permit for replacing a tower. Once the busybodies found out about the permit application, they convinced the new Master Planner, who knew nothing of the history, to notify me that the application would have to go through the planning commission and then a public hearing before the Commissioners.

It took me two weeks to convince the County Manager that was overkill and they gave me the permit. They did, however, send the tax assessor to measure each tower base and add the few square feet of concrete to our tax assessment.

Several years ago, we met Hector, XE2K. He is the one true perfectionist antenna and tower professional. Over the years he has re-worked and rebuilt all the tower installations. He is the only one we trust to build antennas and put them up. Which brings me to the motivation for this article.



XE2K Repairing One of the 10 m beams

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A couple of months ago, we had a 50 MPH windstorm. The next morning the top 40' was missing from the 40 m tower. After 3 years of nothing but routine maintenance and putting up new antennas, we have had no other critical failures.

The cause was the top guy wire breaking at the turnbuckle. One of the professionals who raised the tower from 70' to 140' neglected to put thimbles between the preform on the guy and the turnbuckle. Over ten years, the friction caused the preform to break. For us, all we can do (and did) was do a thorough inspection of all the guy anchors. For those of you who are still building stations, we will offer some hints on how to avoid tragedies and constant maintenance.

- Before embarking on putting up towers and antennas, be realistic about your short- and long-term goals
 - ◆ Are you a casual DXer, Contester or do you want to be competitive?
 - ◆ Are you living in the place that will be a long-term QTH?
 - ◆ What are the zoning and CC&R restrictions?
- Ask a broad cross-section of hams for recommendations on tower installations
 - ◆ What is the optimum height for your needs?
 - ◆ Tubular crank up tower?
 - ◆ Lattice crank up tower?
 - ◆ Guyed tower?
 - ◆ Monopole?
 - ◆ New or used?
- Visit as many other ham installations as practical and interview the owners for the logic they used in their installations.



Wreckage of the 40 m Tower

Preform Without a Thimble



Correctly Installed Preform With Thimble



Lessons Learned – A \$1.00 Thimble, A \$20,000 Repair Job

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- ♦ Examine the installations for safety and reliability
- Do the same research on antennas
 - ♦ Structural integrity?
 - ♦ Performance?
 - ♦ Cost to performance benefit?
 - ♦ New or used?
 - ♦ Commercial or home-built?
 - ♦ Monoband?
 - ♦ Multi-band on one boom?
 - ♦ Multiband with traps or coils?
 - ♦ There are a few commercial antennas that have been on the market for decades and were designed before computer modeling. Some are dummy loads in the air.
- If you are planning a large array or multiple towers, seek professional help.
 - ♦ The Rohn Tower catalog is the bible for base design, tower size and guy anchoring.
 - ♦ Get references on tower professionals
- Climbing tower advice
 - ♦ If you don't have experience and training, don't climb
 - ♦ Never climb alone
- Antenna advice
 - ♦ Most antenna companies are run by amateurs
 - ♦ Advice from other hams typically is the antenna they just put up is the best
 - ♦ Erecting antennas is dangerous. A crane with a man basket is expensive, but cuts time significantly and is less hazardous than tramping.
- The 3db Rule
 - ♦ Doubling your receive and transmit signal requires 3db more gain
 - ♦ The next 3db is exponentially more difficult and more expensive
 - ◊ A sloping dipole in a tree is about \$75. A two-element loaded 40M beam at 70' is about \$5,000. Stacked 4 element 40's on a 140' tower is about \$25,000.



K7NV and K6NA model minimum safe tower climbing equipment

Finally, plan, plan, plan. Seek advice. Safety, safety, safety. Cost/benefit ratio.

About the author: Tom K5RC has been licensed for 61 years, operating mostly CW. He is on the

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top of the Honor Roll with 374 confirmed. He is an inductee in the CQ Contest Hall of Fame. The station belongs to The Comstock Memorial Station, W7RN, a not for profit enterprise. These days, hosting two remotes, he occasionally gets air-time for himself.

Post script: NA5R/W5FU mentioned several times in the article both for building the NA5R station and being the mentor of W7RN, died of COVID 19 on July 14.



The Antenna Farm Before the 40 m Disaster

If You Like the CWTs, Give Sprint a Call

[Ward Silver, NØAX](#)

NA CW Sprint – 20, 40, and 80 meters – 0000-0359 UTC on Sep 13th (Saturday evening in NA).

Fellow CWop-ricots, lend me your eyeballs. The hour-long CWops are great fun — I've started putting them on my weekly "rotation" and they sure get the heart pumping. I can see from the [3830scores.com comments](#) (Thanks, WA7BNM!) that quite a few folks would gladly keep going after the hour is up. Well. I have the contest for you! I've become the North American CW Sprint Manager over the past couple of years and would like to encourage more folks to give that contest a try – there's one coming up soon.

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I know there are lots of CWops members who have sprinted regularly but if you haven't yet tried CW Sprint, it's a natural neighbor of NAQP CW and CWops. ([Rules and schedules are found at here.](#)) If CW Sprint seems intimidating, though, it's not as big of a stretch as you might imagine! While it's different than most contests, there is a "secret" to getting the hang of things as quickly as possible.

Remember there is a "QSY rule" that rewards agility as much as signal strength by requiring you to change frequency. Here's how it works:

- Call CQ > make a QSO > QSY 5 kHz before calling CQ again or 1 kHz before answering another CQ. The station you worked "inherits" the frequency and can call CQ or work a calling station.
- Answer a CQ > make a QSO > the frequency is yours! After your QSO is done, you can immediately work a station calling you or call CQ on that frequency. Once you complete a second QSO on the frequency, you have to QSY 5 kHz before calling CQ or 1 kHz to work another station.
- Hear a station inheriting the frequency > call them and make a QSO > the frequency is yours as in the preceding rule.



Responding to a CQ is easy, but...how do you know when a station is inheriting a frequency? Since all exchanges must include BOTH call signs, the secret is knowing where to place your call sign in the exchange. This makes CW Sprint a whole lot easier. If you are going to leave the frequency after the QSO, send your call sign at the beginning of the exchange, like this:

Step 1 - NØAX: CQ NA NØAX NØAX
After I make a QSO, I'll QSY
Step 2 - N5KO: N5KO
Step 3 - NØAX: N5KO NØAX 42 WARD MO
My call goes here ^^^^
Step 4 - N5KO: NØAX 73 TREY CA N5KO
Trey's call goes here ^^^^
Step 5 - NØAX: R or TU
Trey inherits the frequency

So, if I hear a station ending an exchange with a call sign as in Step 4, I know that station will inherit the frequency and I can send my call to work them. If I hear an exchange end without a call sign as in Step 3, I know the QSO is only half over and shouldn't send my call. I can wait and call the responding station after Step 4 or I can go tune for another station. (At first, it is also helpful to have one CW message programmed to send Step 3 and another to send Step 4. You can get fancy with the macros later.)

Two other "Sprint secrets" are helpful:

- Send your call once and promptly — especially at the beginning of the contest. It is not for

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nothing that what comes after Step 5 is called a “jump ball!”

- Acknowledge clearly that you have received an exchange by sending R or TU (just X will do) so everyone knows when Step 5 is complete and can call. Don’t call before the acknowledgment.

If you are uncomfortable with the hurly-burly at the beginning of the contest, just call CQ, make a QSO, then move. Calling CQ at a comfortable speed is less stressful than full-speed operating. Set your A and B VFOs 5 to 10 kHz apart and jump between them, or use alternate bands. 40 meters is a little less busy at the beginning. If you answer CQs, stations listening will try to call you after you complete Step 5, so be prepared to receive a call sign.

Would you like to listen to examples? N6TR, a regular top finisher, has prepared a “Sprint Survival Page” at www.kkn.net/n6tr/sprint.html. Look for the section “CW Sprint QSO Example.” Tree also explains a number of other ways to have a good time in the CW Sprint. Jim N3BB also wrote a *QST* article about NA Sprint in the February 2019 issue. The Thursday evening 30-minute NS Sprint practice sessions follow the same rules (www.ncccsprint.com/rules.html) and are a good way to get used to the pace and the protocols for the “real deal” on Saturday night.

Best of all for CWops participants, the top scorers are often top sprinters, too. It’s good fun and you’ll raise your totals on Wednesdays, too!

The Waterway CW Net: An Invitation

[Dr. Bob Lade W9UCR](#)

I realize that the majority of the club's members are active in the CWTs and the Academy, but a few of us, having come from a National Traffic System (NTS) background enjoy operating on the various nets that proliferate on the bands, especially 80 and 40 m. I would like to extend an invitation for the membership to check out one net in particular, the Waterway CW Net. I am net manager and we are proud to have 14 of our members also members of CWops.

We meet daily at 7:00 a.m. Eastern Time (1100Z at the moment) on 7053 kHz.

The net was formed about 30 years ago when



W9UCR in the shack

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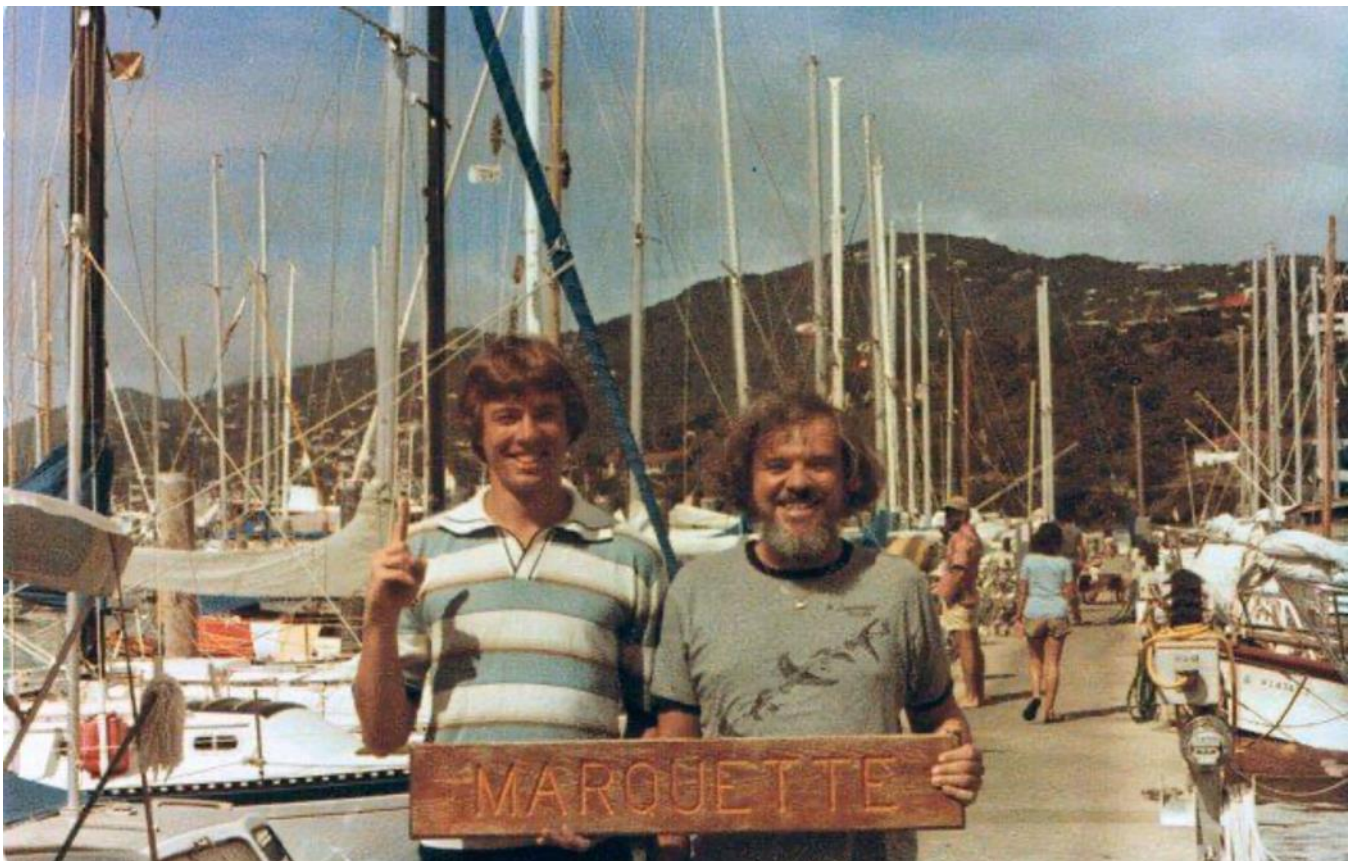
some of us were cruising on our sailboats in the Caribbean and Bahamian waters. We are loosely affiliated with the Waterway Radio and Cruising Club (WRCC) with a website at www.waterwayradio.net/cwnet.html. We mainly pass weather information in an informal way. Typically, we have 25-30 members check in each morning. Geographically we span from San Juan PR to the SE, to Nova Scotia to the NE and Dallas TX in the SW to St. Paul MN in the NW.

Although the net was initially boat, and cruising oriented, most of us have since sold our boats and are landlocked.

The net is run between 25-30 WPM so it could be a good way for you contest guys to check out your skills with conversational CW and at the same time meet a bunch of interesting characters as well. A copy of the net roster is available from the link above so you can get an idea of our member locations.

The background of our membership is quite diverse with two cardiac surgeons, a handful of PhDs, a firefighter, a number of aviators, and most of us are retired. But we all share that love for CW.

So next time you turn your rig on a bit early before CWT or other activities, tune up to 7053 and listen in. Better yet, when Net Control asks for check-ins, give your suffix and get on the list. Hope to see some of you the WWCW Net soon.



W9UCR (right) and his son in St. Thomas, USVI, circa 1978.

Giving Back Update

[Rob Brownstein K6RB](#)

CWops' Giving Back (GB) program is meant to provide on-air QSO experience and practice for anyone who wants it. It was initially intended as a way for our CW Academy students to get some on-air experience. We all know that when there is activity on the bands, these days, it's usually a DXpedition pileup or a contest. Today's CW aspirants have had little chance to work others who are skilled at CW, operate at moderate speed, and are committed to helping. That's the mission of Giving Back.

The GB volunteers get on the air at approximately 7 PM local time and seek out CQers, or call CQ, and engage in routine QSOs including some conversational tidbits. Here is the current schedule:

Giving Back Operating Schedule 7 PM Local Time 40 m									
	UTC+3	UTC+2	UTC+1	UTC/BST	EDT	CDT	MDT	PDT	UTC-10
Mon				GM0EUL	AF8A	K8UDH	NS6W	N6HCN	KH6LC
Tues		SV2BBK	PG4I	GW2CWO	WE5P	W8OV	K7NJ	K6RB KK6M	
Wed		DF7TV		G0HKC	N4TMM	K5XU	KU7Y		
Thurs		SV2BBK		G2CWO		AC6ZM	NS6W	WU6X	AH6KO
Fri		SV2BBK			VE3FXX W2LCQ	AC6ZM	KU7Y	K6RB	
Sat					VE3FXX	AC6ZM			
Sun						N9EP		K6RB	

Those interested in working these folks and practicing should look for them at around 7 PM in each time zone. They will usually send a "CWA" just before signing after a CQ. This identifies them as GB volunteers and lets others know these people are there to help. Here are the results of July's GB efforts:

Stations Worked

AF8A: W2CW, N5ID

AH6KO: KG6NRV, VE7LIO, KM6TVV, K6LTS/7, KC7MM, AG7F, KC9VC, NU6F, K0GMO, WA6MOW, NE7EE, W8PC, W7FY, W0OJ

G2CWO: DK2FG, R2DNU, EA7IZ, DG2FDD, HB9DXA, I5ECW, ON4CGD, DL4KAJ, I1PJK, YU1KQR

GM0EUL: EC7K, OK1AL

GW2CWO: PA0VLD, ON4JXC, OE3OPW, I5ECW, DK5FN, G0LWI, OZ7BQ, IK2WAD, ON6YI, DL1DUS, G4IYC, HA3HS, 9A1CBM, M6FEU, RA5BI, SM1TDE, HA8EV, I2MOV, HB9HFA

K6RB: KB5KPD, W1LJ, N6VOH, AI7AS, KD7ICW, KK7ER, KG7YU, W2PIX, K7JPF, N7EF, WB6BEE, AC2K, WA9SWW, K9ING, KM6TVV

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K7NJ: AC3EO, KC9VPP, AC6YY, K0AF, K9ING, N0KLC, W5AIM, W8KO, WA9FCA, VE7CRX, N6WT, W2PIX, K7UQ, KD6GBY, WZ6T, KI7NRI

K8UDH: K3EW, KG5IEE, KA3KIH, W9AVW, N9ZXL, K0BXB, N8AI

KH6LC: K7KHC, NN0F, KG6NRV, VE7IAD, K6TTT, KB7WDP, W7DBS, N6TV, WB5ZOR, VA7AMV, WA6SVX, W3EEK

N4TMM: W4DP, WB3AVF, KF5YOE, KP3W

N6HCN: W6KSR

N9EP: KC2EQ, VE3BXG, W2CW, AG0K, N6WT, K2HYD, W9YK, N5XE, K3PC

PG4I: IZ5GSF, G0WWH, DL9RCH, IZ0DZX, OK1API, IN3RWF, IK7UKF, OM3TBG, SA4BRL

SV2BBK: IT9ULN, UR5CC, R6DAI, SP5UHP, DL8AWK, SV3IRH, IK5ZUW

VE3FXX: KB2OME, VE2MFD

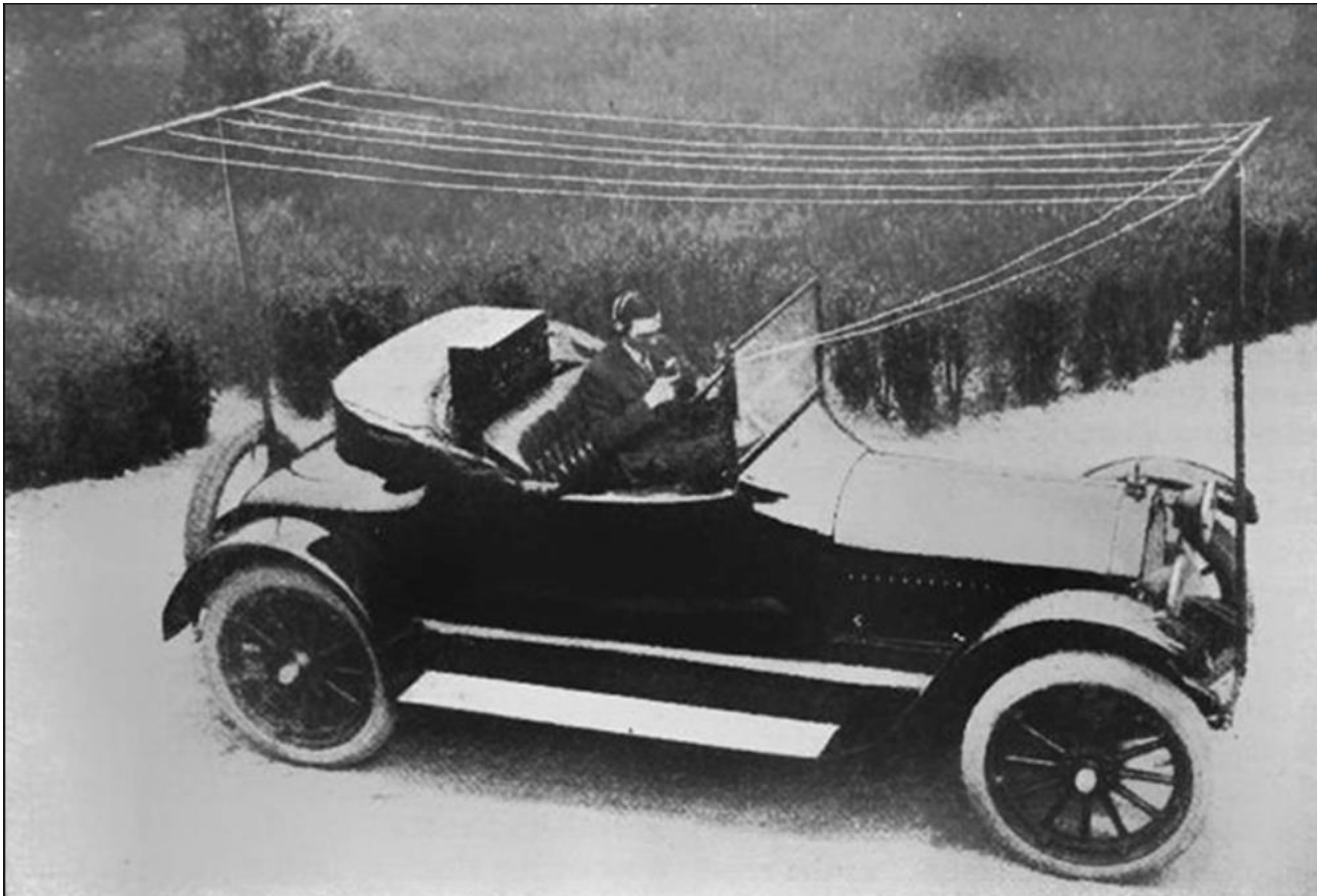
W8OV: KC9ERZ, N4TOL, KG5CQO, K6EE, KA4AAF, K0EKA

WE5P: KG5CQO, N6WT, KF5YQE, AE4GS, KB2FWP

WU6X: W6NKU, KC8J, W6DT, N6UG

HF Mobile in 1919

From the [Hackaday web](http://www.hackaday.com) site: Alfred H. Grebe.



CW Academy

[Kate Hutton K6HTN](#) [Joe Fischer AA8TA](#) [Bob Carter WR7Q](#)

The September-October 2020 CW Academy semester is just around the corner. Seems like our Summer break zoomed by in no time and we are looking at a busy semester coming up. The April-May semester was unusual in that we did not have enough students to allow all of our advisors to have a class. That is not going to be the case in September.

On August 1 we stopped accepting students for the September class and subsequent signups will be assigned to a January 2021 class. This does not mean that we might move a few students from January to September, but we are not anticipating doing so. As of August 1 we have 619 students who have been pre-confirmed to take a September class. This means that each student confirmed their availability to be in a class. They still must confirm that they can meet their advisor's schedule and other requirements.

Of these students, there are 246 students in a beginner class, 169 students in a basic class, 129 students in an intermediate class and 75 students in an advanced class. As usual, the North American East Coast time zone is our most active zone with 252 students (all levels), followed by the Central zone with 118 students, the West Coast zone with 95 students and the Mountain zone with 79.

We have 56 students in Europe and 19 students in other areas of the world.

We have 94 advisor-classes which includes advisors who are leading more than one class. There are 44 beginner advisor classes, 25 basic advisor classes, 18 intermediate advisor classes and 7 advanced advisor classes. We actually have 76 advisors leading these 94 classes.

As of this writing we have our strongest need of advisors for advanced classes in the Eastern areas of NA. There are also some needs for advisors at all class levels in other time zones. As usual, we need advisors in Asia.

Something that is fairly new is our associate advisor program; we have 15 advisors who have signed up as associate advisors. Associate advisors work with a primary advisor to assist with a class, provide extra practice to certain students during a class, provide a backup to the primary advisor and help plan how the class proceeds. We hope that our associates can be placed with primary advisors.

It is impossible to say enough thanks to all of the talented advisors who volunteer their time and efforts to help students learn Morse code and improve their CW skills. There is lots of interest among hams and we welcome anybody who loves CW to join us in training the next generation of CW operators.

73,

Kate K6HTN, Joe AA8TA, Bob WR7Q
CW Academy Managers



New Members

Trung Nguyen W6TN

With great pleasure we welcome the following new members to CWops:

CWops	Call	Name
2656	W8EH*	Ernie
2657	K5PHB	Frank
2658	KN4DEB*	Arnie
2659	N1RM*	Rick
2660	LZ5PW	Vassil

CWops	Call	Name
2661	N0CVW*	Chas
2662	W8UA	Jay
2663	SM6MCW/ SM6M*	Peter
2664	W3MA*	John
2665	K5ESW*	Paul

CWops	Call	Name
2666	K9CPO*	Nate
2667	Z32U	Zoki
2668	W3US*	Rusty
2669	OK4MM	Jarda
2670	K0VD*	Sam

*Life Member

Current Nominees

As of August 8, 2020:

Need Sponsors: KK6ZHK, XE1IM, KA4RUR, WA6SVX, HB9AJY

Invitations Extended: F5EQR, K5ME

For more details about nominees and up-to-date status, check the "Membership" then "Members only" page on the website: <http://www.cwops.org>.

For information about joining CWops, check the "Membership" page on the website: <http://www.cwops.org>

Notes: If you have updated your personal info, e.g., new QTH, new callsign, or additional callsign, please send it to membership@cwops.org so I can add it to the roster. Vice versa, if your callsign becomes inactive I can remove it, too. Then the roster will be accurate and current for our usage.

73,

Trung W6TN, Membership Manager



CWops Member Awards

[Bill Gilliland W0TG](#)

The Annual Competition Award (ACA) is based on the number of members worked each calendar year. You get one point per member worked, once per year. It resets to zero at the beginning of each year. The Cumulative Member Award (CMA) is based on how many members you've worked since January 3, 2010 on each band and continues to grow in perpetuity. [Use the new online tool to submit your data](#). It's easy! (Watch the tutorial if you have not used the online tool before.)

This table is a composite of scores from the old system and the new. Anyone who submitted logs via the new web page will see those submitted scores here. Those who have not adopted the new process will see scores they reported via the old system. Anyone who see errors in their scores should report them to cwopscam@w0tg.com.

Members whose call signs are in **RED** have achieved a milestone: 100 DX entities, 40 WAE entities, 50 states (WAS).

Call	ACA	CMA	Call	DX	Call	WAS	Call	WAE	Call	WAZ
AA3B	1498	9836	W1RM	206	WT9U	50	W1RM	58	UR5MM	39
K3WW	1332	7409	F6HKA	188	WT2P	50	UR5MM	58	W1RM	38
N5RZ	1257	4404	DL6KVA	159	WA9LEY	50	DL6KVA	57	OK1RR	38
NA8V	1162	5578	W4VQ	154	WA4JUK	50	OH2BN	55	OH2BN	38
W1RM	1158	6777	UR5MM	152	W9ILY	50	F6HKA	53	N8BJQ	38
K3WJV	1144	5100	G4BUE	149	W7GF	50	VE3KI	50	F6HKA	38
F6HKA	1105	6066	OH2BN	148	W6KY	50	OK1RR	49	AA3B	38
K4WW	1080	3051	OK1RR	141	W4VQ	50	9A1AA	48	9A1AA	38
WT9U	1070	3919	VE3KI	134	W1UU	50	G4BUE	47	W4VQ	37
N8BJQ	1034	6308	N8BJQ	125	W1RM	50	DJ1YFK	47	VE3KI	37
K7QA	1025	3140	K3WW	124	W0EJ	50	N8BJQ	46	G4BUE	37
KG9X	999	3446	AA3B	124	VK7CW	50	AA3B	46	W0VX	36
VE3KI	989	5794	K1ESE	120	VE3KI	50	PG4I	45	N5PHT	36
K1VUT	973	3221	AC4CA	118	NU7Y	50	K3WW	45	K3WW	36
I2WIJ	965	2046	9A1AA	118	NA8V	50	G4HZV	45	DL6KVA	36
K3JT	950	3442	W0VX	117	NA6O	50	IK0YVV	44	AC4CA	36
N7US	921	3793	N5IR	114	N8BJQ	50	W4VQ	43	N5RR	35
K1ESE	888	4368	N5PHT	113	N7US	50	SM0HEV	43	ON4CAS	34
WA4JUK	876	2557	EA8OM	111	N5RZ	50	NA8V	43	N1EN	34
N1DC	850	3356	W9ILY	110	N5RR	50	K3WJV	43	IK0YVV	34
K8JQ	848	3765	K1SM	110	N5PHT	50	K1ESE	43	4X6GP	34
DL6KVA	845	4078	N1EN	109	N5IR	50	I5EFO	43	W9ILY	33
AC3BU	842	1943	VK7CW	105	N2UU	50	W9ILY	42	VK7CW	33
K9WX	831	3221	N5RR	105	N2RC	50	N5RR	42	NA8V	33
K6NR	808	1841	4X6GP	105	N1EN	50	N2UU	42	N5IR	33
W4PM	795	1495	N2UU	104	N1DC	50	EA8OM	42	K1ESE	33
K1DJ	782	2986	W1UU	103	KY7M	50	DL5DBY	42	K0VBU	33

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Call	ACA	CMA	Call	DX	Call	WAS	Call	WAE	Call	WAZ
W4WF	773	2138	I5EFO	103	KU7Y	50	AC4CA	42	I5EFO	33
WN7S	772	2167	NA8V	102	KE4S	50	4X6GP	42	K1SM	32
N5PHT	770	4179	K3WJV	102	K9WX	50	K1SM	41	I5IYJ	32
NA4J	765	1864	IK0YVV	101	K8JQ	50	RM2D	40	WA9LEY	31
K2TW	750	2254	AE1T	101	K8AJS	50	M0RYB	40	RM2D	31
AC6ZM	750	1338	N7US	100	K7QA	50	K8AJS	40	N7US	31
9A1AA	733	3161	ON4CAS	99	K6NR	50	HB9ARF	40	N5RZ	31
W0VX	730	4427	EA1WX	99	K5IX	50	G3LDI	40	N2UU	31
KV8Q	729	1668	K0VBU	98	K5CM	50	W0VX	39	W1UU	30
N2UU	727	4296	K8AJS	95	K5AX	50	SM7IUN	39	OK1RP	30
W9ILY	719	4373	WA9LEY	94	K4WW	50	N5IR	39	NA6O	30
KT5V	707	2282	WT9U	92	K4GM	50	N1EN	39	N2RC	30
K4TZ	700	1703	N5RZ	90	K3WW	50	LA8OM	39	KR3E	30
W6LAX	682	1136	K1DJ	89	K3WJV	50	IT9MUO	39	K3WJV	30
NR3Z	666	1142	N2RC	87	K3SEN	50	AE1T	39	K8AJS	29
K8AJS	653	3120	F6JOE	87	K3JT	50	M0DHP	38	K3JT	29
CO8NMN	649	1844	KY7M	86	K2QB	50	K1DJ	38	IT9VDQ	29
KE8G	646	2412	KR3E	86	K1ESE	50	IT9VDQ	38	WT9U	28
NJ3K	642	1107	RM2D	85	K1EBY	50	I2WIJ	38	N5AW	28
VE3TM	636	1024	K3JT	84	K1DJ	50	G4NVR	38	KT5V	28
W3WHK	622	2080	I5IYJ	83	K0VBU	50	DK1WI	38	K4GM	27
WS1L	617	1066	AD1C	83	K0MP	50	SM5IMO	37	DJ1YFK	27
WA9LEY	602	2945	DJ1YFK	82	IK0YVV	50	OZ3SM	37	WT2P	26
K0TC	597	2037	K4HQB	81	I5EFO	50	MI0WWB	37	N1ZX	26
IT9MUO	597	1924	PG4I	80	G4BUE	50	KR3E	37	KU7Y	26
K0VBU	595	4266	NA6O	80	F6JOE	50	K3MD	37	K5ZD	26
OZ3SM	557	1115	K9WX	80	F6HKA	50	K3JT	37	K5CM	26
K4GM	554	2828	N1DC	79	F5MNK	50	G4ILW	37	K4HQB	26
K5ZD	550	2306	K5AX	79	EA8OM	50	F6JOE	37	K2QB	26
K3SEN	550	2004	DL8PG	79	AE1T	50	DF7TV	37	K1DJ	26
K0MP	550	1670	N1ZX	77	AD1C	50	W1UU	36	WA4JUK	25
W2NRA	541	1887	IT9VDQ	77	AC4CA	50	LB6GG	36	V31MA	25
AG4EA	535	952	WA4JUK	76	AB7MP	50	G4DRS	36	LA8OM	25
KB4DE	533	1054	K4GM	76	AA8TA	50	EA1WX	36	K9WX	25
VE3MV	532	2065	LA8OM	74	AA3B	50	WA4JUK	35	K7QA	25
WA2USA	532	1051	KE4S	74	WN7S	49	SQ9S	35	IT9MUO	25
W1UU	524	3091	G4HZV	74	WB5BKL	49	ON4VT	35	DK1WI	25
N5IR	519	3691	SM0HEV	73	WA3GM	49	ON4CAS	35	K4WW	24
KE4S	500	2219	K2QB	73	W4WF	49	N1DC	35	HB9ARF	24
W2VM	498	1539	IT9MUO	73	W4ER	49	K5ZD	35	DL4FDM	24

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Call	ACA	CMA	Call	DX	Call	WAS	Call	WAE	Call	WAZ
W8OV	498	1446	G3LDI	73	W3WHK	49	K0VBU	35	PG4I	23
KT4XN	495	1281	HB9ARF	72	W2NRA	49	IN3FHE	35	N1DC	23
LB6GG	494	930	WT2P	71	W0VX	49	PA3BFH	34	KE8G	23
KB8GAE	493	1231	K5ZD	71	VE3MV	49	N7US	34	K8JQ	23
W8DN	481	1228	DL5DBY	71	VA7ST	49	N5AW	34	K6NR	23
K6KM	481	816	DK1WI	71	NN4K	49	K4HQB	34	G4HZV	23
KC8J	470	954	N5AW	70	NA4J	49	IK0NOJ	34	WE5P	22
NN4K	468	2154	K7QA	70	N5AW	49	DL4FDM	34	SM0HEV	22
W0TG	465	1496	K4WW	70	N2WK	49	WT9U	33	NA4J	22
KF8O	456	924	W2NRA	69	N1ZX	49	W2NRA	33	N2WK	22
KC4WQ	454	694	N7WY	68	KV8Q	49	SV2BBK	33	KG9X	22
W8FN	450	2055	KE8G	68	KT5V	49	N5RZ	33	KE4S	22
K5QR	445	674	F5MNK	68	KM4FO	49	K1VUT	33	I2WIJ	22
W4VQ	442	3045	OZ3SM	67	KG9X	49	N2WK	32	SM7IUN	21
K1EBY	441	2368	I2WIJ	67	KE8G	49	N2RC	32	OZ3SM	21
W1EQ	439	813	SM7IUN	66	KE4RG	49	KY7M	32	K6DGW	21
M0RYB	438	997	N2WK	66	K6RB	49	K7QA	32	K3SEN	21
SM0HEV	436	978	V31MA	65	K6DGW	49	I5IYJ	32	K1EBY	21
AA8R	436	962	OK1RP	65	K4TZ	49	F5MNK	32	G4DRS	21
AA8TA	427	1775	KT5V	65	K4HR	49	F5IYJ	32	G3LDI	21
DF7TV	427	566	SM5IMO	64	K3MD	49	EA4OR	32	W4PM	20
G4BUE	424	3816	K1EBY	64	K1VUT	49	EA3FZT	32	W2NRA	20
HB9ARF	404	1672	G4NVR	64	K0TC	49	DK3WW	32	W0TG	20
SQ9S	403	783	W3WHK	63	DL6KVA	49	W4PM	31	VA7ST	20
N4CWZ	403	611	M0RYB	63	AC3BU	49	VK7CW	31	NN4K	20
NG1R	401	805	KG9X	63	W8OV	48	V31MA	31	JF2IWL	20
W2XYZ	398	557	K3DMG	63	W8FN	48	OK1RP	31	IN3FHE	20
K4EES	377	678	VE3MV	62	W8DN	48	N1ZX	31	CO8NMN	20
RM2D	375	1332	VA7ST	62	W4PM	48	KE4S	31	AC3BU	20
KM4FO	366	1401	K8JQ	61	W2VM	48	K5AX	31	AA8R	20
DJ1YFK	359	1773	K5CM	61	W0TG	48	K4WW	31	W7GF	19
G4HZV	354	1239	K1VUT	61	VE3TM	48	K4GM	31	W4ER	19
KK0ECT	352	757	G4DRS	61	UR5MM	48	G3WZD	31	W3WHK	19
K2YR	352	481	K3SEN	60	OK1RR	48	DL8PG	31	VE3MV	19
G3LDI	347	1602	DL4FDM	60	NJ3K	48	NA6O	30	M0RYB	19
OK1RR	341	2707	ON4VT	59	N7WY	48	K1EBY	30	KB8GAE	19
UR5MM	340	2920	F5IYJ	59	KT4XN	48	WA9LEY	29	K4HR	19
PG4I	333	722	NA4J	58	KR3E	48	W3WHK	29	G4NVR	19
G4NVR	330	1185	SQ9S	57	KK0ECT	48	SP1D	29	F5IYJ	19
NU7Y	327	1431	K4QS	57	KE6K	48	PA3HEN	29	DF7TV	19

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Call	ACA	CMA	Call	DX	Call	WAS	Call	WAE	Call	WAZ
G4DRS	324	955	W6KY	56	KB4DE	48	N5PHT	29	WN7S	18
VA7ST	322	2579	K6RB	56	KA9BHD	48	KE8G	29	WA3GM	18
NA6O	319	3352	IN3FHE	56	K5ZD	48	K4QS	29	W8FN	18
K8RJW	318	678	NN4K	55	K4QS	48	K2QB	29	SQ9S	18
K4AFE	317	1771	M0DHP	55	K4HQK	48	G0ELZ	29	ON4VT	18
OH2BN	312	1309	CO8NMN	55	K4AFE	48	VE3MV	28	NU7Y	18
DK3WW	311	491	WE5P	54	K3DMG	48	KG9X	28	KE6K	18
SM7IUN	305	737	W4PM	54	K2TW	48	K9WX	28	K6KM	18
W6TN	303	926	DF7TV	54	K1SM	48	AD1C	28	K4AFE	18
KD2KW	294	413	AC3BU	54	IT9VDQ	48	VA7ST	27	K1VUT	18
AB7MP	292	1245	LB6GG	53	IT9MUO	48	NN4K	27	K0TC	18
WE5P	292	885	IK0NOJ	52	I2WIJ	48	M0NGN	27	IK0NOJ	18
KE4RG	291	1126	G4ILW	52	EA1WX	48	K8JQ	27	WB5BKL	17
W8XC	287	624	AA8R	52	DL8PG	48	K3SEN	27	W4WF	17
WA5PFJ	284	661	KU7Y	51	9A1AA	48	K2TW	27	SM5IMO	17
W3RZ	278	478	WN7S	50	4X6GP	48	DL4KG	27	LB6GG	17
KJ4M	276	1078	W2VM	50	WT8P	47	AC3BU	27	K0MP	17
G3WZD	275	553	K4HR	50	WA2USA	47	NA4J	26	DK3WW	17
AJ1DM	274	774	K4AFE	49	W8XC	47	K3DMG	26	W6TN	16
VE6JF	269	802	W0TG	48	W6TN	47	G0MGM	26	W2VM	16
N1EN	264	2444	K2TW	48	W6LAX	47	CO8NMN	26	VE3TM	16
DL5DBY	261	1123	MI0WWB	47	W2NO	47	NR3Z	25	NR3Z	16
PA3BFH	260	427	K0TC	47	VE1OP	47	WT2P	24	M0DHP	16
WT8P	252	488	NR3Z	46	SM5IMO	47	WN7S	24	KV8Q	16
KE6K	244	946	DK3WW	46	ON4CAS	47	W2VM	24	DL5DBY	16
4X6GP	239	1744	G0MGM	45	OH2BN	47	K6RB	24	DL4KG	16
WB5BKL	235	1256	W4ER	44	NR3Z	47	NJ3K	23	W8OV	15
SP1D	231	346	W4WF	43	LA8OM	47	K5QR	23	W8DN	15
W7GF	229	956	W8FN	42	KJ4M	47	K5CM	23	NJ3K	15
N7SU	226	473	KB8GAE	42	KF8O	47	EA1DP	23	NG1R	15
N7MU	219	536	G3WZD	42	KC8J	47	AA8R	23	MI0WWB	15
EA4OR	205	368	WA3GM	41	KB8GAE	47	NG1R	22	KT4XN	15
W6GMT	198	391	SV2BBK	41	K6KM	47	DL8BH	22	KE4RG	15
NF5KF	198	289	PA3BFH	41	K4EES	47	W4WF	21	KB4DE	15
KI3F	197	308	KV8Q	41	I5IYJ	47	KT5V	21	G4ILW	15
W1AJT	195	223	K6NR	41	HB9ARF	47	JF2IWL	21	G3WZD	15
GD4EIP	184	199	K3MD	41	DK1WI	47	GD4EIP	21	AJ1DM	15
MI0WWB	183	484	WB5BKL	40	CO8NMN	47	F5PBL	21	AB7MP	15
KA9BHD	157	755	W8DN	40	AG4EA	47	DL1NKB	21	W8XC	14
M0DHP	155	490	W8XC	39	AC6ZM	47	VE3TM	20	W2NO	14

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Call	ACA	CMA	Call	DX	Call	WAS	Call	WAE	Call	WAZ
PA3HEN	155	169	NJ3K	39	AA8R	47	K4HR	20	VE6JF	14
KU7Y	154	1674	NG1R	39	WS1L	46	GW4MVA	19	N7MU	14
SV2BBK	152	338	KT4XN	39	WE5P	46	WE5P	18	N0PP	14
EA3FZT	149	240	DL4KG	39	WA5PFJ	46	WB5BKL	18	KM4FO	14
DL4KG	148	203	EA4OR	38	VE6JF	46	WA3GM	18	K5QR	14
KG5VK	147	163	W8OV	37	V31MA	46	WA2USA	18	K2TW	14
OK1RP	136	701	K6DGW	37	RM2D	46	W6KY	18	AA8TA	14
ON4VT	131	678	AA8TA	37	N7SU	46	W2NO	18	WA2USA	13
M0NGN	117	138	W0EJ	36	N0PP	46	W0TG	18	W3RZ	13
AF3K	116	618	EA3FZT	36	KC4WQ	46	VE1OP	18	SV2BBK	13
EA1DP	104	131	W2NO	35	K8RJW	46	K4AFE	18	KJ4M	13
K8MP	84	89	SP1D	35	K5QR	46	G4RCG	18	KC8J	13
G0ELZ	82	199	PA3HEN	35	JF2IWL	46	W8XC	17	K4TZ	13
GW4MVA	82	95	JF2IWL	35	G3LDI	46	W8FN	17	K4EES	13
DL8BH	81	115	VE3TM	34	DL5DBY	46	PA0VLD	17	AG4EA	13
AA0O	75	85	M0NGN	34	AJ1DM	46	KB4DE	17	AC6ZM	13
G4ILW	59	693	KB4DE	33	W1EQ	45	W4ER	16	PA3BFH	12
DL1NKB	55	75	G0ELZ	33	W0PHX	45	KV8Q	16	KF8O	12
LA8OM	54	1370	VE1OP	32	OZ3SM	45	KB8GAE	16	KA9BHD	12
I5EFO	52	1447	K5QR	32	NG1R	45	K6NR	16	WS1L	11
F5IYJ	51	660	KM4FO	31	N4CWZ	45	K0TC	16	W6LAX	11
ON4CAS	39	1131	WA2USA	29	G4NVR	45	AG4EA	16	W1EQ	11
DD7CW	38	38	W7GF	29	G4HZV	45	W8DN	15	W0PHX	11
KM3A	28	33	NU7Y	29	AF3K	45	KU7Y	15	SP1D	11
K4NE	25	74	K4TZ	29	W3RZ	44	KT4XN	15	M0NGN	11
VK7CW	20	1809	KA9BHD	28	PG4I	44	K8RJW	15	KC4WQ	11
PA0VLD	20	37	EA1DP	28	ON4VT	44	W8OV	14	K8RJW	11
DD5KG	17	18	AJ1DM	28	N7MU	44	W1EQ	13	K2YR	11
AC4CA	0	4479	AG4EA	28	KD2KW	44	KF8O	13	EA4OR	11
N5RR	0	4223	W6TN	27	K2YR	44	K0MP	13	AF3K	11
K6RB	0	4032	W3RZ	27	G4DRS	44	AJ1DM	13	WA5PFJ	10
K5AX	0	3634	KE6K	27	N5KW	43	AC6ZM	13	W2XYZ	10
N2RC	0	3271	KE4RG	27	KI3F	43	AA8TA	13	KI3F	10
KY7M	0	3252	KC8J	27	F5IYJ	43	W2XYZ	12	K1OJ	10
AE1T	0	3206	K6KM	27	DJ1YFK	43	KI3F	12	GD4EIP	10
F6JOE	0	3002	DL8BH	27	W6GMT	42	KE4RG	12	G0ELZ	10
WT2P	0	2976	N0PP	26	SM7IUN	42	KC8J	12	DL8BH	10
IK0YVV	0	2958	K0MP	26	N7ID	42	K6DGW	12	WT8P	9
K5CM	0	2866	GD4EIP	26	M0RYB	41	KA9BHD	11	W6GMT	9
EA8OM	0	2758	F5PBL	26	DL4FDM	41	K4TZ	11	N7SU	9

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Call	ACA	CMA	Call	DX	Call	WAS	Call	WAE	Call	WAZ
K1SM	0	2566	KF8O	25	SQ9S	40	W3RZ	10	N7ID	9
N5AW	0	2510	K8RJW	25	SM0HEV	40	W0EJ	10	KK0ECT	9
N2WK	0	2339	AC6ZM	25	NA1VT	40	NF5KF	10	KG5VK	9
N7WY	0	2303	K5IX	24	DF7TV	40	NA1VT	10	F5PBL	9
K4HQB	0	2193	AB7MP	24	W1AJT	39	N5KW	10	WX5CW	8
K6DGW	0	2122	DL1NKB	23	LB6GG	39	KM4FO	10	W4MDV	8
AD1C	0	2101	NF5KF	22	IN3FHE	39	K2YR	10	PA3HEN	8
W6KY	0	2088	G4RCG	22	G3WZD	39	WS1L	9	NA1VT	8
K4QS	0	2069	WS1L	21	W4MDV	38	DD7CW	9	KD2KW	8
K2QB	0	2023	W1EQ	21	W9KM	37	SM7CIL	8	G4RCG	8
EA1WX	0	1961	K4EES	21	NF5KF	37	N0PP	8	EA3FZT	8
DL8PG	0	1789	GW4MVA	21	KB8PGW	37	KJ4M	8	EA1DP	8
K3DMG	0	1773	W2XYZ	19	IK0NOJ	37	KD2KW	8	SM7CIL	7
K3MD	0	1734	KJ4M	19	DK3WW	36	K5IX	8	N5KW	7
K4HR	0	1698	AF3K	19	OK1RP	35	W6TN	7	GW4MVA	7
IT9VDQ	0	1618	KI3F	18	MI0WWB	35	KG5VK	7	N4CWZ	6
KR3E	0	1602	KC4WQ	18	GD4EIP	35	K6KM	7	K1IG	6
V31MA	0	1520	K2YR	18	G0MGM	35	K4EES	7	DL1NKB	6
SM5IMO	0	1382	W6LAX	17	W2XYZ	33	AF3K	7	DD7CW	6
N1ZX	0	1348	W0PHX	17	KG5VK	33	WA5PFJ	6	W9KM	5
W4ER	0	1311	VE6JF	17	M0DHP	32	W6LAX	5	PA0VLD	5
WA3GM	0	1230	PA0VLD	17	G4ILW	30	VE6JF	5	AA0O	5
F5MNK	0	1111	N7MU	16	PA3BFH	29	NU7Y	5	W1AJT	4
W2NO	0	961	NA1VT	14	K8MP	29	KK0ECT	5	KM3A	4
DK1WI	0	908	N5KW	14	G4RCG	28	KC4WQ	5	K4NE	4
K5IX	0	892	KK0ECT	13	K4NE	27	AB7MP	5	K8MP	3
I5IYJ	0	837	KD2KW	12	EA4OR	27	W6GMT	4	DD5KG	3
IN3FHE	0	769	DD7CW	12	DL4KG	27	KE6K	4	AF9W	3
VE1OP	0	768	WA5PFJ	11	SP1D	25	W0PHX	3		
W0EJ	0	754	SM7CIL	11	AA0O	25	N7SU	3		
JF2IWL	0	674	KG5VK	11	SV2BBK	23	N4CWZ	3		
DL4FDM	0	646	K1OJ	11	AF9W	23	WT8P	2		
N5KW	0	639	WX5CW	10	G0ELZ	21	W1AJT	2		
N0PP	0	550	W6GMT	10	WX5CW	20	N7MU	2		
G0MGM	0	495	N7SU	9	M0NGN	18	N7ID	2		
W0PHX	0	426	N7ID	9	KM3A	17	KB8PGW	2		
IK0NOJ	0	366	K1IG	9	PA3HEN	15	K1IG	2		
N7ID	0	311	WT8P	8	SM7CIL	13	DD5KG	2		
NA1VT	0	306	W4MDV	8	GW4MVA	13	AA0O	2		
KB8PGW	0	284	N4CWZ	7	F5PBL	13	WX5CW	1		

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Call	ACA	CMA	Call	DX	Call	WAS	Call	WAE	Call	WAZ
W9KM	0	236	KB8PGW	5	EA1DP	13	W9KM	1		
W4MDV	0	225	W9KM	4	DL8BH	11	W7GF	1		
F5PBL	0	134	W1AJT	4	EA3FZT	10	W4MDV	1		
G4RCG	0	131	DD5KG	4	DD5KG	10	KM3A	1		
AF9W	0	59	AA0O	4	DD7CW	9	K1OJ	1		
WX5CW	0	49	K4NE	3	K1OJ	3				
SM7CIL	0	35	KM3A	2	PA0VLD	2				
K1OJ	0	29	K8MP	2	DL1NKB	2				
K1IG	0	13	AF9W	2	K1IG	1				

New to Member Awards?

[Use the new online tool to submit your data.](#) It's easy! (Watch the tutorial if you have not used the online tool before.)

QTX Report

Enjoying the Art of Conversational CW

[Bruce Murdock K8UDH](#)

Have you ever heard this comment: "I'm a CW contester. Why should I do ragchew QSOs?" Maybe you even asked yourself that question. Let me offer some ideas.

Ragchew QSOs Are Fun. They remind us of the past. All of us were CW beginners at some point. Do you remember what happened when you first got on the air? I was nervous. You probably were too. I had a script. Maybe you did too. But after a while we put our scripts aside and learned to say more than just a basic CW information exchange. We had conversations and we made friends. In other words, we ragchewed a little bit, and it was fun. It can still be fun today.

Ragchewers Can Help Newer CW Operators by Giving Them Someone to Talk To. Our CW Academy Advisors do a great job teaching CW and sending students on their way with hopes and dreams of having CW contacts. But where will they find hams willing to operate at their speed? The Giving Back Program? [The Straight Key Century Club? Where? I think we should be willing to occasionally reach out or down to them at their CW speed for some conversational CW.](#)

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Ragchewers Help Keep the Bands Alive with the Sweet Sound of CW between [Contests](#), [Sprints](#), and [Special Events](#). Without conversational QSOs when there are no contests, sprints, or special events, what do you think you would hear? Probably not very much.

Let's take a look at the comments and reports from our group of ragchewers.

Comments from QTX submissions

WA2USA: This is the first I've heard of the QTX program, a great opportunity and incentive to better my CW skill. I'm adding 4 Q's I've had this month with a buddy of mine who lives in upstate New York. We've been doing this for years on 30 meters. Jeff keeps me up to date on the activities within the area. He tells me about his Amish friends moving into the area, barn raising, home buildings and marriages. Jeff is also an avid 6 m DXer, so I get to hear the latest band conditions, etc.

N6HCN: Cross-town QTX as Ed, W6KSR gets into CW. Dave, WB6TOU was eclectic as ever- doesn't every QSO start with discussion of gas permeability of polymer films?

W9EBE: My longest QSO (52 minutes) this month was with Jerry/K5DMC. What a nice QSO!

WS1L: Three QSO's stuck out for me this month. I worked John, N5ID, and was thrown for a loop at first as the call had been held by Joe Morris, SK, a friend and fellow DXer from back in Mississippi. Jim, K7HZ, was using his grandfather's bug, which was a really nice thing to hear. Finally, the last QTX of the month came about when Peter, G4LHI called me on 40. Peter is 93 and still pounding brass!

MI0WWB: My longest QSO this month was 19 minutes!

G3WZD: My weekly Giving Back outing is my primary source of MQTX... 73 de G3WZD

KC0VKN: Some really hot July days kept me inside!

AA5AD: Lots of interesting contacts this month with 13 colonies and the FOC Bug event, but my most interesting ragchew was with Louis, AG5XU, in Leaky, TX who was operating portable from camp. Tom, NJ8D, continues to keep me on my toes with his rapid-fire cootie key. Longest QSO this month was a 28-minute QTX with Frank, KA8BJA who was in OH.

AJ1DM: Enjoying rag-chews with K2KRG, W3PNM, K1CHM, and others. Everyone stay safe! 73

N8AI: Get well wishes for avid CW ragchewer W4MQC Alan who had a bad bike wreck that put him in hospital for two weeks. At home now recovering with fewer QSO.

K8UDH: I had several really enjoyable QTX QSOs in July, including one with Chris N8AI, who is a very good ragchewer.

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Awards and Medals for 2020

Medals for 2020 are awarded for three different levels in QTX.

Gold – 400 QTX QSOs

Silver Medal – 300 QTX QSOs

Bronze – 200 QTX QSOs

The Gold Medals earned through July 31st are Art (K8CIT) with 880 QTX QSOs, Joe (KC0VKN) with 501 QSOs, and Bill (N5IR) with 442 QSOs. Gary (N5PHT) with 368 QSOs has qualified for a Silver Medal. Our Bronze Medal earners are Chip (W9EBE) with 289 QSOs, Chris (N8AI) with 273 QSOs, John (K1ESE) with 245 QSOs, and Tom (DL5DBY) with 209 QSOs.

QTX for July 2020

Call	QTX	Call	QTX	Call	QTX	Call	QTX
K8CIT	131	K5YQF	31	K4AHO	10	N5LB	3
KC0VKN	84	WS1L	29	KG5IEE	10	SV2BBK	3
N5IR	62	KB6NU	26	AA5AD	9	W3WHK	3
N8AI	49	W9EBE	26	K8UDH	9		
K1ESE	40	N6HCN	17	W5LA	5		
N5PHT	35	AJ1DM	15	WA2USA	4		

MQTX for July 2020

Call	MQTX	Call	MQTX	Call	MQTX	Call	MQTX
N8AI	44	KG5IEE	16	K1ESE	10	K4AHO	6
SV2BBK	23	MI0WWB	15	N5PHT	8	W5LA	5
W9EBE	19	WS1L	13	G3WZD	7	N6HCN	2
AA5AD	16	AJ1DM	11	K5YQF	7	K8UDH	1

QTX for 2020

Call	QTX	Call	QTX	Call	QTX	Call	QTX
K8CIT	880	KB6NU	160	W3PNM	39	K6DGW	6
KC0VKN	501	K5YQF	131	KG5IEE	31	W5LA	5
N5IR	442	N6HCN	114	AA5AD	26	WA2USA	4
N5PHT	368	K2KRG	111	SV2BBK	24	AB7MP	4
W9EBE	289	K4AHO	105	WB6TOU	23	G3WZD	3
N8AI	273	AJ1DM	82	W3WHK	22	KU7Y	3
K1ESE	245	F5IYJ	75	IK0IXI	22	KR4TH	1
DL5DBY	209	K8UDH	50	EW6BS	15		
WS1L	197	AG4EA	50	N5LB	9		

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MQTX for 2020

Call	MQTX	Call	MQTX	Call	MQTX	Call	MQTX
DL5DBY	564	K1ESE	84	KG5IEE	38	W3WHK	12
N8AI	393	AA5AD	76	K5YQF	33	WB6TOU	11
W9EBE	219	K8CIT	76	W3PNM	24	AB7MP	9
SV2BBK	178	N6HCN	51	K6DGW	23	W5LA	5
WS1L	148	K4AHO	50	AG4EA	22	KU7Y	5
K2KRG	134	MI0WWB	47	K8UDH	18	N5LB	3
N5PHT	117	G3WZD	46	AJ1DM	17		

This year is one we will never forget. I hope you're staying healthy and enjoying CW. It can be very therapeutic and relaxing.

73,

Bruce K8UDH, QTX Manager

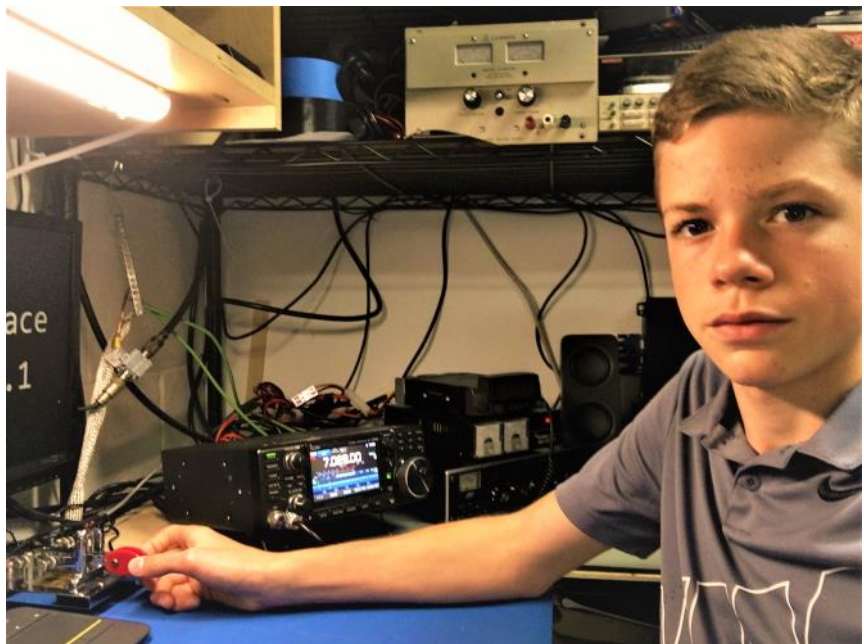
My Story: New Member Biographies

Javan "Jay" Miller, W8UA

First off, I would like to thank Dave, K1VUT for nominating me and all of the other sponsors. I didn't have time to notice my sponsors because it was done in several hours!

I got my technician license in December of 2018 when I was 12, and soon upgraded to General and Extra. I recently got my new call sign W8UA, about two weeks ago.

I started learning the code soon after I got my HF radio, which was about a year ago, in the middle of 2019. I didn't use any class (unfortunately), as I didn't know about CW Academy. I learned the way that I thought was the easiest, which is the famous chart



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method! It took me a long time to learn to actually hear the characters instead of visualizing them, but I am now around 30 WPM comfortable copy.

Most of my operating time is in contests, which I do almost every weekend, although I also love rag chewing on CW as well. The antenna arrangement over here is rather minimal, as I use a 40M OCF dipole in my attic, but I am still able to be lightly competitive in contests. I have lately enjoyed operating QRP in contests as well, which is a double negative with my poor antenna farm! I LOVE Sprints, which makes it awesome that I can operate in CWTs. My scores may not look very good compared to AA3B, but I have a bunch of fun, as I aim for 60 Q's per session, which I usually am able to do.

If you hear me on the air around 7.025 – 7.030 around 30 wpm, please give me a call. I love rag chewing in the evenings throughout the week. Thanks again to all of the different CWops members for making the organization so great, and thank you so much for letting me join.

Rick Miller, N1RM

In the mid-1960s, my dad deployed to Antarctica as a pilot for the US Navy. I was in junior high school at the time, and the only way to communicate with him was handwritten letters that had a transit time of 2 weeks in each direction. One evening my mom answered the telephone and started talking loudly and saying "over" whenever she stopped. She called me over and asked if I would like to talk to Dad. I was totally confused but did have about a 30 second halting conversation. I



was a watershed moment in my life because I became an engineer at that instant. I have spent most of my life trying to figure out just how that conversation worked.

I got my Novice ticket at the age of 16 in 1968 at the club station at NAS Lemoore, Ca. I remember operating a DX-35 with a 75S-3 receiver. We relocated to the east coast where I built a Heathkit DX-60B and SB-301 and was active for a while, but school and other activities caused me to move away from the hobby, though I never lost interest.

In 1977 I had completed college and was in the Navy myself, getting ready to deploy to the Mediterranean. A squadron buddy convinced me to drive up to the FCC office in Savannah, Georgia and take the general exam since he wanted help manning the ham station on the USS Saratoga. I brushed off the SB-301 and listened assiduously to the W1AW code broadcasts. I managed to

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pass the code, General, and Advanced exams. When the lady asked me for my callsign so she could give me my interim license, I told her I had no license. She sheepishly informed me that I needed to take the Novice exam since I was currently unlicensed. I have never been more nervous about a test but managed to pass.

I spent 5 years in the Navy and ran thousands of phone patches for sailors and their families. It was great to give back that experience to others. I then started a 40-year career as an engineer doing work in the data communications and defense industries. And it all started with that phone patch back in the sixties.

I am now retired and just completed building my first station that has a rotating HF antenna, and I'm having a blast.

Beyond ham radio, my dear wife Kris and I love to hop on our Harleys and head west to the Blue Ridge mountains and beyond. We did our "bucket list" trip in 2016, circumnavigating the lower 48 states over a 6-week period. I put an APRS tracker in the bike for that trip and published an article in QST with the results.

Ham radio has been more than a hobby for me. It has provided fertile ground to explore new ideas and make wonderful friends. I wish I had a chance thank that selfless ham who helped me talk to my dad.

Arnie Walls, KN4DEB

I am from a small town in south-central Pennsylvania and did not have much exposure to the world of technology while growing up. I did, however, have the opportunity to learn Morse code while pursuing the rank of Eagle Scout, which I successfully attained in 1988. In December of 1988, I departed my small town in pursuit of world-wide adventures with the United States Marine Corps. This simple choice in life led to a very successful 23-year career where I learned more than I could imagine about a lot of topics.

Following Recruit Training at Parris Island, SC my first school taught me the fine art of being a Manual Morse Intercept Operator and first introduced me to the computer. After this six-month course of instruction, I was assigned to Company C, Marine Cryptologic Support Battalion, Guam where I was entrusted with the collection of Morse code



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sent by some of the world's fastest operators. As such, I had the honor of passing Morse code Gold Certification requirements by my ability to copy Morse code at 40 Groups Per Minute (GPM); putting me in the top 1% of all Marine Corps Morse Intercept Operators.

Following this tour of duty, I spent the next 5 years in Radio Reconnaissance where I was able to learn more about both Analog and Digital technologies while deployed around the globe. Although most of my activities involved more advanced technologies for the times, Morse code proved to make vital contributions in times without a more advanced communication means. In one case, my abilities with Morse code enabled me to call a Medical Evacuation for a fellow Marine when all other communication paths were not successful. This one example reinforces the concept that no matter how advanced technologies become, Morse code's simplistic application and ability to punch through atmospherics makes it one of the most viable, and trusted forms of communication when times are tough.



The remaining years of my Marine Corps career led to me being a Drill Instructor at Parris Island, SC and multiple overseas deployments supporting contingency operations in areas such as Bosnia-Herzegovina, Somalia, Liberia, East Timor, and Iraq to name a few. My career concluded with my tour at Quantico, VA where I was responsible for including emerging technologies within some of the Marine Corps' most advanced Signals Intelligence and Electronic Warfare systems.

Following my retirement from the Marine Corps in 2011, I had pretty much put Morse code behind me but often thought of the good ol' days. Ironically enough, I was elated when I first met CWops member Steve Bookout, NR4M in 2018. He was the first to introduce me to the world of Amateur Radio and I believe he was somewhat intrigued with my Morse code history. Steve initially invited me to the "Goat Farm" where he showed me his Ham Shack before allowing me to operate during one of the CW competitions. It seemed as though my Morse code memory came back pretty fast as I was working two radios within a few hours and able to make QSOs at speeds over 30 GPM. I think it was at this point that I became sold on being a ham. Steve, and the rest of the crew at the Goat Farm, have since taught me a lot more about being a ham; including more technical aspects required for the Extra Exam. With that, I want to thank Steve (my Elmer), Larry K7SV, and the other "Goat Farm Contesters" for taking me under their wings and nominating me to the world's most prestigious CW organization. I look forward to the many friendships and QSOs that I'll discover over the coming years.

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John Salyer, W3MA

The launch of Sputnik got many of us interested in the sciences. Young minds were opened to things we didn't think possible. A crystal radio set for Christmas and a nearby ham radio operator (Tom, W3EOZ) opened my world to amateur radio.

Within three suburban blocks, we had six junior highers all licensed and sharing vital frequencies using CW and AM. We had a school radio club, headed by Gary Brown, W3AFF (an Oscar winner for the Steadicam). Gary was the only person I knew that sent code via a sideswiper! We used hand keys and bugs, with weights to slow the "dits."

We were hands on people that built mostly Heathkits, but there were oldtimers that would amaze us with what they could put together from surplus stores. That's when the phrase "smoke test" came about!

Early ham radio was competitive (who had the best antenna, highest location, furthest DX) and eventually led many of us into contesting. While in high school, I joined the Frankford Radio Club. Contesting with paper logs and dupe sheets, sending CQ with a flat aluminum plate, with CQ de K3DPQ, carved around the perimeter. Joining a club introduced me to a number of experienced radio operators that were eager to share their knowledge.

I enrolled in N.C. State University and started off in electrical engineering. I soon changed into



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civil, thinking maybe it was best not to continue a hobby into a career. At school I occasionally used the school station, W4ATC. After college, I married my wife of 53 years, Marilyn, K3MMS, and worked as a professional engineer for the Pennsylvania Department of Transportation.

It wasn't until we bought our first house, that I really became active again. My ham radio passion centered around building my station to include operator conveniences such as, electronic keyers, memory keyers, early software (TRS Model III) to dupe logs. Always looking for an advantage over a fellow competitor.

Contesting took me to ZF1WW, HK0COP, and VP9AD. These trips brought competitiveness, great friendships and camaraderie, and exposure to some of the world's best operators.

Allan, VP9AD, got me interested in boating. And over the past 15 years since retiring, Marilyn and I have been traveling the waterways of the east coast and the Bahamas. But all good things come to an end...and maybe full cycle. I'm back in the shack, trying to build a competitive station again and trying to hone my operating skills.

It's amazing, after all these years, how friends developed early on in my radio years are still there. Isn't it fun to reminisce?

Jarda Rohleder, OK4MM

Jarda, OK4MM lives in a small town in southern Moravia, the eastern part of Czechia - or Czech Republic. However, ten years ago, he moved his radio equipment to a rural cottage, far from civilisation. The electro-magnetic noise generated today by households is a nuisance even in small towns.

Here he has three of his favourite things - radio, dog and the vineyard.

Jarda is now over 70 years old, or should I say young. He received his first licence 50 years ago, a couple of months before the Soviet invasion on Czechoslovakia in 1968.

To get the permit, he had to wait 5 years participating in club activities. His first call sign was OK2PBM.

A view from the radio room on the upper floor of Jarda's countryside cottage shows grapevine



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plants, and some fruit trees, live here in harmony with radio antennas. The telescopic aluminium tower is next to the house, with also a low-band vertical. This is a flat area at about 300 m a.s.l. (1000 ft), but Czechia is mostly a mountainous country.

Inside the radio room there are no piles of expensive equipment. He is a competent DXer through knowledge and patience. Jarda spent 5 years at sea working as a ship radio officer. In the 1980s many radio amateurs from Czechoslovakia, which has no access to any sea, were recruited to work as Sparks aboard large vessels. He visited many DX places and was frequently on the air as OK4PBM/MM. At that time there were 3 call districts in OK land, the figure 4 was used by maritime stations. When it became allowed, he changed his home call sign to OK4MM.

Relatively simple antennas, usually low power, sometimes even QRP, but the results are spectacular. Being on the DXCC Honor Roll and having 161 DXCC entities confirmed on 1.8 MHz using this relatively simple setup is an achievement. Jarda has also visited almost 70 DXCC entities and was on the air from about two-thirds of them. In the past 20 years or so he has activated many islands.

Ernie Howard, W8EH

I'm honored to become a member of CW Ops. My friend John N8AA encouraged and nominated me for membership. I was first licensed as a Novice in 1972, upgraded to Advanced in 1973, and finally got to 20 wpm to pass my Amateur Extra in 1978.

I've been working in electronics for 46 years. For the last 40 years I've been employed by the City of Middletown as an electronics technician and supervisor, where I work on two-way radios, airport nav aids, and traffic signal control systems.

Before being licensed, I did a lot of listening to short wave and VHF public safety frequencies. That strange beeping that I kept hearing got me interested. I got in with our local club, the Dial Radio Club of Middletown and they invited me to a class. Several of us high school students studied with a very good CW traffic



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handler. He taught us right and got us using CW well enough that we passed our Novice licenses, and not long after that, our 13 wpm to upgrade.

I've experienced many different things in ham radio. I started with CW, then phone, VHF FM, repeaters, satellites, SSTV, RTTY (with the old mechanical Model 19 TTY) and the new digital modes.

Presently I do a lot of contesting (mostly CW), working DX, operating FT8, and working satellites. Over the years my favorite contest has been the ARRL 160, where I was lucky enough to win Ohio a couple of times. I have achieved 5 Band DXCC, WAC, WAS Triple Play, VUCC satellite and now working on the paperwork to qualify for WAZ.

The main HF station radios here are an Icom IC-7610 and IC-7300. The HF antennas include a tribander at 30 feet, a vertical, and a bunch of wires. My satellite station consists of the Icom IC-9700 and AZ-EL steerable beams.

I do a lot of experimenting with antennas, build kits and repair broken stuff.

I'm looking forward to full retirement soon, so that I can get more radio time.....

The included picture is of me operating CW during this year's "at home" ARRL Field Day. I operated class 1E and ran my radios on battery power with solar charging.

Zoran (ZOKI) Grozdanovski, Z32U

Born in 1966 in a small village near Bitola, his name is Slepche and from this summer my new HAM location for vacation.

Like all children in socialism, I had to have some preoccupation and because my affinities were focused on technique, my teacher decided that I had to go to the radio club. Some things are random, but later they determine the direction of life.

The first beginnings in the HAM world are from 1978 when I started the electronics course at the local radio club YU5KXY (later Z37Y), and the following year 1979 in October I started with the CW course.

February 1980 I received the first C license for HAM operator, the requirement was to pass the test and receive/transmit 12wpm. Easy done.



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Since we did not have computers or morse generators, the teacher typed with a straight key. By the end of the school year, I had surpassed his capabilities, I have already reached 24 words per minute.

The restrictions of the C class were work on 80/40m and VHF repeaters. I mastered 80/40m CW/SSB work very quickly, but I did not turn 18 to take the B class, which had no band restrictions.

I had to manage to make progress, so I worked under the name Djoko, who had a B license. If anyone has a QSO with YU5KXY and a Djoko, it's me.

In 1984 I became the HST champion of Macedonia and fourth in ex YU and achieved B class, the same year I went to the army where I continued to advance with the CW in the radio club YU4JOP but also professionally in the army. In 1985 I was third in the HST ex YU military championship. I was already a member of the YUCW club with 30wpm.

In the meantime, I received the YU5MF call sign and after the independence of Macedonia Z32MF.

In 1985 I started university studies in electronics and telecommunications and after graduation I worked as a service technician for TV and audio equipment, precision mechanics in a textile factory and servicing of automated sewing and ironing equipment.

Finally to be an authorized service technician of Kyocera photocopiers and printers.

In 2016, after all the dice were rolled, with the support of my wife Maria and daughters Jasna and Elena, I decided to reactivate, but now, as a well-known operator and diploma winner, I received the short call sign Z32U.

I started with a borrowed Yaesu FT-101E and fan dipole, and later bought an Icom 726 and finally an Icom 765. The last acquisition was a Codan 9360 which I redesigned for the CW and free tuning for mobile and portable work. Especially for my love Slepche, the village where I was born.

I prefer working with 100 watts, but a good rating is achieved with much more power. I work for the Z3B contest team and the national Z30HQ team in the IARU HF Championship. I love contests, but I rarely do SSB. CW forever!

Many thanks to Mats RM2D for nominating me for CWops membership and sponsorship of Ed DK1WI, Adam SQ9S and Bud AA3B.

I honestly did not expect to gather the necessary sponsorships so quickly.

Nathan McCray K9CPO

My interest in ham radio started in 1983 when my father-in-law, N4DIT, made it very clear that if I wanted to marry his daughter, N4NRN, I would have to at least get my novice ticket and I would need to learn Morse code. A few months later I had my ticket.

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I had two careers. The first started in 1981 when I joined the United States Navy. The first 10 years I repaired ships. I then completed Non-destructive Training School in San Diego. I would spend the next 11 years performing radiography, magnetic particle inspections and other inspections on shipboard structures. I was also heavily involved in ship repair, planning, fire-fighting and training. In 2002, after serving on 5 ships and two shore facilities I retired out of Great



K9CPO (right) demonstrates how to make a satellite QSO at the ARRL Teachers Institute in Michigan, 2009.

Lakes as a Senior Chief Petty Officer. It was that last command that I found out enjoyed teaching.

My other career was teaching 5th and 6th grade at two different school districts. The first was Zion District 6 and the last was Kenosha Unified School District 1. I enjoyed this second career very much but ended up being medically retired in 2018 after nearly 13 years in the public-school system.

The best part of that brief career in education was holding after school ham radio clubs for each school that I taught. Many of those students would earn their ticket. We would have a complete “shack” set up and would be active in the school club round ups or other contests.

I also enjoyed a part time gig with the ARRL’s Teachers Institute for Wireless Technology. I spent my summers from 2006 – 2013 teaching one or two classes either in Newington and Sacramento the basics of electronics and ham radio to teachers from around the country.

During my two careers I was mostly active on the local repeaters and chased DX when I had time. Prior to 2017, I rarely worked CW. My CW skills were not sharp. When I was taught CW in the early 80’s it was done just to get my novice license. So, I listened and sent at 5 wpm and counted dit’s and dah’s. I also wrote everything down on paper and wondered why anyone could send and receive so fast.

In March of 2017, I took a year off from ham radio. My health was the major reason. The years of repairing ships had taken its toll on my body. I ended up having 3 major surgeries in 4 years to repair damage to my spinal column.

In March of 2018 I was medically retired from my second career. So, what does a recent retiree

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do? I dusted off my old equipment and added a few new pieces. I got back into HF and started working on my CW skills.

After a few months I managed to get my speed up to 13 wpm. However, I still struggled with head copying. One day I was looking through some old QRZ posts and someone suggested to improve my CW skills I should take the CWops class. I signed up for a class in the spring of 2019. Dallas, K1DW was my facilitator and Frank, K1EBY was his associate advisor. That was the best CW training I ever experienced.

After that class I was sending and receiving at 20 wpm. I started working contests and the CWTs. I was hooked on CW. This past spring, I took the next level class. Dave, W8OV was my facilitator and helped my get to 25 wpm and beyond. Suddenly the CWTs did not seem so fast and I am able to hold my own. Now about 95% of my QSO are CW.

As for my family, I am married to Michelle, (N4NRN) and have two adult children. My son Josh is KC9BXK. We have four awesome grandkids.

I want to thank my CWops instructors and CWops members that have helped me along the way. I intend to give back. This fall I will be Dave's associate advisor for a beginner's class. I hope to facilitate my own class this winter.



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